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ABSTRACT

This document provides authoritative information on sources and procedures for developing competency-based or performance-based teacher education (PBTE). Directed toward program designers, the paper largely assumes that the reader has moved beyond a definitional stage of understanding of the topic, although in chapter two a series of resources are annotated that provide several alternative definitions of PBTE. The bulk of the document, however, deals with the designing and planning of a competency-based program, its initial development, and development of a prototype test and its operational implementation. Two appendixes containing evaluation questionnaires are included. (JB)

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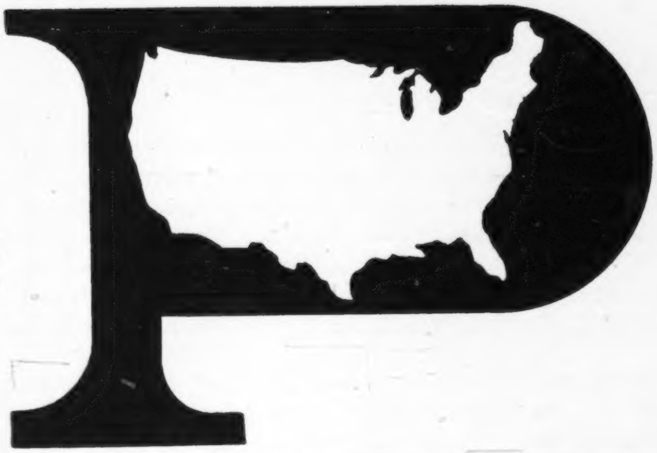

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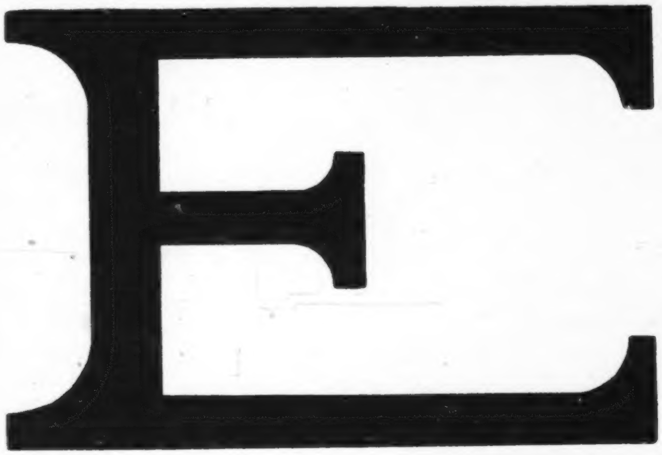

SP 006 706

STRATEGIES AND RESOURCES FOR DEVELOPING A COMPETENCY-BASED TEACHER EDUCATION PROGRAM

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NEW YORK STATE EDUCATION DEPARTMENT
DIVISION OF TEACHER EDUCATION AND CERTIFICATION
and
MULTI-STATE CONSORTIUM ON PERFORMANCE-BASED
TEACHER EDUCATION

FOREWORD

The Division of Teacher Education and Certification of the New York State Education Department is pleased to make available to interested readers Strategies And Resources For Developing a Competency-Based Teacher Education Program by W. Robert Houston. The publication was developed through funds available to the New York State Education Department under Part B-2 of the Education Professions Development Act.

The printing and dissemination cost for this publication were borne by the Multi-State Consortium on Performance-Based Teacher Education. It is the belief of the New York State Education Department and the Multi-State Consortium on Performance-Based Teacher Education that this catalogue will be of significant value to all those engaged in developing and refining competency-based teacher education programs.

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Preface

As teacher training institutions and state certification agencies become more interested in the competency-based movement, the need for authoritative information on sources and procedures for developing such programs is increasingly evident. This volume grew out of that demand, and is directed to program designers.

The subject, Competency-Based Teacher Education, is not fully defined. This was deliberate, because in Chapter 2 a series of resources are annotated which provide several alternative definitions. Furthermore, most readers will have moved beyond the definitional stage.

The movement generally is referred to as "Competency-Based" or "Performance-Based" Teacher Education. Some differences may reside in these two designations, as discussed in Chapter 2; however, both terms refer to the same concepts and which title is selected is a matter of choice.

"Teachers" are broadly defined to include educational workers in general, not only persons interacting with children in classrooms. Strategies and procedures for defining competencies and designing programs for training teachers are equally applicable to school administrators, counselors, paraprofessional workers, media specialists, and others in the field of education. Finally, the "teacher education institution" is not limited to a college or university, but includes the coalition of institutions engaged in training educators -- schools, professional organizations, and universities.

During the past few years, first as director of the Michigan State University Elementary Education Model and later as director of the University of Houston Competency-Based Program, the author has been deeply involved in formulating plans and implementing new programs. While working with about twenty colleges during the past two years, it seemed that even though the geographical location changed, the questions and problems were similar. These experiences furnished the context for the selection of topics in this volume.

The content grows from many sources. For two years the elementary models directors met, analyzed, and clarified concepts. Colleagues at Michigan State and Houston reacted to ideas. Especially the ideas of Howard Jones, Robert Howsam, Wilford Weber, James Cooper, and Bruce Burke were appreciated. Members of the Coordinating Committee of the National Commission on Performance-Based Teacher Education, directed by Fred McDonald and co-directed by Horace Aubertine, were concerned with similar problems. Norman Dodl, Gilbert Shearron, Bruce Joyce, Theodore Andrews, Karl Massanari, and many others have discussed parts of the manuscript at one time or another. Many of the ideas generated and clarified in the heat of discussion gain a multiple conceptual identity. Whenever possible, however, we have credited the source of that cherished commodity, a new idea. To those mentioned herein, and to all those who are contributing to the growth of this movement through conceptualizing and testing ideas and procedures, this volume is dedicated. Comments and suggestions for updating and revising it are appreciated. As in the systemic approach to curriculum development, it will never be completed, but improved through use and refinement. This is one stage of development.

W. Robert Houston
October 2, 1972

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Chapter 1

THE DEVELOPMENTAL TASK

Perhaps no movement has impacted American teacher education so rapidly or so forcefully as the competency-based movement. Almost every teacher education institution in the nation is experimenting in one way or another with competency-based efforts. A number of states are committed to teacher certification based on demonstrated competencies rather than course completion.

The purpose of this volume is to suggest procedures for developing Competency-Based Teacher Education Programs (CBTE), considerations in their implementation, and some potential resources to support these efforts. As is evident from the contents, this is not a theoretical treatise, but a practical guide for the practitioner.

THE NEED FOR PLANNED CHANGE

While change has occurred in teacher education for many years, the results have not been spectacular nor pervasive. Changes often were made in individual courses with little attention to their impact on the total program of the prospective teacher. Discontinuity of results from such actions was signalled by overlapping content, overemphasis on particular instructors' pet ideas, and a high degree of abstract discourse. Lack of real understanding of the teacher's role was compounded by lack of perception of the psychological readiness of the prospective teacher. In this morass, even innovative ideas were so diluted that no significant change resulted.

A major new thrust which promises vigor and innovativeness in designing viable new programs is the systemic approach. This involves simultaneously dealing with all of the elements which comprise the total system. It also involves planning the change so as to provide for ongoing interactive, adaptive, and regenerative processes. Some of the targets where change is needed include:

1. The attitudes and perspectives, values, and behavior systems of people who are concerned with teacher education.
2. The organizational and communication structures within which teacher education programs operate,

including school districts, colleges and universities, and state departments of education; and

3. The curricula studies by prospective teachers.

It is evident that the elements which exist in interaction in the real world cannot effectively be treated in isolation during a planned change process.

CHANGING PEOPLE

Vital in the endeavor are the persons directly engaged in education: teachers and prospective teachers in elementary and secondary schools, trainers of these teachers, and the people and programs which educate both of these groups. All must be responsive to the needs of the various communities affected by and interacting with the educational system; all must employ recent research findings in human learning processes, communication, and instructional strategies; all must utilize products of the technological revolution; and all must seek processes which help them to remain current.

Orienting these various populations to the power of CBTE should not be construed as easy. All have perceptions of what the teacher is and expectations for the teacher's behavior. In the realm of the behaviors within the primary institutions such as home, school, and church, change comes painfully and slowly. Human systems have a considerable capacity to resist change; to return after change efforts to a new equilibrium which closely approximates the old.

Difficult as changing people's perceptions may be, it remains the critical task. Schools will not improve until teachers change. Programs for preparing teachers will never rise above that which can be accomplished by teacher educators. Achieving a *critical mass* of changed behavior by all these individuals so as to tip the scales firmly in the direction of change is the goal.

CHANGING ORGANIZATIONAL STRUCTURES

The educational consortium or Teacher Education Center provides the means to tailor the education process for specific students in a particular environment. Such a consortium includes teacher education institutions, schools, and the organized profession. Each of the cooperating institutions has unique contributions to the consortium, but each also has a history of independent operation and quasi-cooperation. Each has primary responsibilities assigned to it by society and tradition, responsibilities it is reluctant to share with others. Each has a rationale for its organizational pattern, for its hierarchy of positions and statuses, and for its rules and regulations.

Given a genuine desire for and commitment to action by the different institutions, a consortium can promote flexibility of view, agreement of viewpoints, and commitments to action. In the complexities of competency-based program implementation strategies, such consortia are important stimulators or progress, but their growth and development require careful nurturing.

CHANGING PROGRAMS

The very notion of CBTE implies a clear idea of what the student is to become. The emphasis is on objectives rather than activities. Such objectives are stipulated in advance, described in explicit, observable terms, and made known to the student prior to any related instruction. Activities then are designed to contribute to the student's demonstration of objectives; and evaluation of a student's progress or of the program's viability is in terms of such objectives.

Three types of objectives are pivotal in competency-based programs: *cognitive*, *performance*, and *consequence* objectives. In *Cognitive-Based Objectives*, the participant is expected to demonstrate knowledge and intellectual abilities and skills.

In *Performance-Based Objectives*, the participant is required to *do* something rather than simply to *know* something. While contingent upon knowledge, performance-based objectives place the emphasis on observable action.

In *Consequence-Based Objectives*, the participant is required to bring about change in others. To assess a prospective teacher's ability to teach, the achievements of pupils he instructs are examined. In CBTE, greater emphasis is placed on performance- and consequence-based criteria than on cognitive-based criteria. What teachers know about teaching seems less important than their ability to teach and to bring about change in children.

Two other types of objectives are often included in competency-based programs. Objectives in the *affective* domain are imbedded in all other classes of objectives, but tend to resist the specific description expected of the first three types. Nevertheless, affective objectives are vital in a competency-based program. Objectives from any classification type should not be selected because they are easily stated, or deleted because of lack of technical precision in their delineation.

The fifth type does not completely fit within the classification of objectives since the definition of the desired outcomes is defaulted. In these objectives, termed *exploratory*, the outcomes are not precisely defined; rather activities which hold promise for significant learning are specified. Characteristic of exploratory objectives is a high degree of randomness in what may be encountered. Further, the idiosyncratic dispositions of the learner largely influence the actual learning outcomes of the experience.

Exploratory objectives, however, may lead to explication of other criterion-referenced objectives which become more meaningful in a personalized program. For example, a student may learn from a visit to a ghetto settlement house that he is cognitively and affectively unprepared to cope with children from certain cultural subgroups. This in turn may lead to identification of specific needs and to a program designed to remove the recognized deficiency. Competency-based programs, however, do not depend upon exploratory objectives; such objectives are introductory for students and employed in program areas where precise outcomes cannot as yet be explicated.

Changing the teacher education program thus implies careful examination of program goals and recasting them into explicit, observable objectives. It further implies that the *total* program, not just some segment, is considered in the redefinition of outcomes. Last, it implies that the emphasis is upon what students can accomplish or demonstrate upon matriculation, not upon what their instructors can do or teach.

PROCESS OF CHANGE

In the preceding section three targets for educational change were identified: people, organizations, and programs. Any attempt at improving teacher preparation programs begins with the premise that changes will be viable only to the extent that these targets are involved, interrelated, and directed toward the new emphasis.

Development of new programs, their testing, adoption, and integration into the teacher education process requires planning and reallocation of resources. While systems analysts have specified several variations in the design process, five stages appear to be basic.

1. Planning and Designing
2. Development of Instructional Program
3. Prototype Testing of Program
4. Initial Operation
5. Sustained Operation

These five stages in program development interact with the three targets of change; that is, at each stage, all of the targets must be considered and involved. This interaction is illustrated in the matrix below.

FIGURE 1

INTERACTION IN PROGRAM DEVELOPMENT

Stages of Change Process	Targets of Change		
	People	Organizations	Program
1. Planning and Designing	X	X	X
2. Initial Development	X	X	X
3. Prototype Test	X	X	X
4. Initial Operation	X	X	X
5. Sustained Operation	X	X	X

In developing a CBTE program, several activities are conducted in each of the five stages of the change process. Without attempting to define these activities in detail, the list in Figure 2 may aid a program planner to identify some of the tasks required in the implementation process.

FIGURE 2

POTENTIAL TASKS IN PROGRAM DEVELOPMENT

STAGES OF CHANGE PROCESS	POTENTIAL ACTIVITES
1. Planning and Designing	-proposal planning -identification of needs -location of constituencies -staff selection -funding strategies -policies development -substantive program devel. -evaluation approaches -monitoring points -objectives development
2. Initial Development	-training preservice -specific substantive info. -communication -monitoring -staff evaluation -community participation approaches -module development
3. Prototype Tests	-refunding strategies -linkages -resource development -leadership strategies -information -building support base for long term benefit -training and retraining -task analysis -performance-based criteria
4. Initial Operation	-negotiations -training and retraining -constituency-building
5. Sustained Operation	-communication approaches -information-sharing -training and retraining -recruitment of staff -public information -evaluation of feedback

In the following chapters in the volume, each related to a stage in the change process, attention will be given to the various targets of change. Materials, in-service programs, and suggestions will be explicated for those proposing the development and design of a competency-based program.

The initial phase in program development is planning and designing. Chapter 2 projects programs and resources for initial staff orientation to CBTE. Procedures for determining competencies, program assumptions, and employing systemic management techniques are discussed.

Translating objectives into a sequential instructional program which is tailored to the developmental needs of students is the focus of Chapter 3, Initial Development. Instructional modules are discussed, design procedures outlined, and resources identified.

The major objective of the prototype test, Chapter 4, is program evaluation. Processes for examining both program objectiveness and its organization and management are projected.

Chapter 5 is concerned with the operation of the program after initial testing. This phase involves the institutional change process as well as adoption practices by individual staff. Some indicators of institutional commitment are tentatively identified. Sustained operation implies continued change in a CBTE program, thus the final sections of this chapter deal with future orientations and maintaining program relevancy.

Chapter 2

PLANNING AND DESIGNING

The first stage is crucial to the process of implementing CBTE programs. So much needs to be accomplished so quickly; momentum is difficult to generate. Long-range plans must be formulated, people oriented, public relations established, and programs explained while they are still being designed. Instant results seem to be the plea from every quarter. These initial efforts are the focus of this chapter.

At no other stage in program development is involving people more vital. Professors, administrators, teachers, and professional associations generally want to be involved in new ventures; if they cannot because of extenuating factors, then they at least do not wish to be embarrassed by lack of information or incorrect use of the latest pedagogese. Early recognition of the importance of this facet of program planning will prevent undermining by the traditional human reaction of distrust of new concepts not yet understood, and rejection of programs to which they were not asked to contribute.

Long-range commitment and integration of CBTE entails early efforts to involve staff in awareness conferences, decision-making committees, program design efforts, policy councils, and a continual process whereby contributions are recognized and rewarded.

Orienting concerned persons is an important part of the program design process. Programs could be attempted with little articulation among components or little relevance to teaching. Successful efforts, however, require careful delineation of program objectives and clear definition of basic assumptions upon which they reside.

Planning and management of project efforts undergird both staff development and program design. Long-range plans, based on systems design principles, should be outlined when the program is initiated. While these plans can be changed readily, the stipulation of tasks to be accomplished, their time for completion, and definition of individual responsibilities are essential for effective program development.

Chapter 2 is organized to focus on each of these three aspects of planning and designing CBTE programs: staff development, program development, and planning for change. Suggestions for the CBTE design team and identification of resources are included in each of these three sections.

STAFF DEVELOPMENT

Success of any venture is predicated upon the innovativeness, vision, and efforts of a small number of people. Surrounding them are other committed individuals who are less involved, but contribute to the success of the effort. Finally, a large number of persons are interested in knowing about the effort and being nominally involved. Recognizing these differing needs aids in identifying relevant activities; it also decreases ulcer-producing frustrating experiences.

Initial experiences in CBTE are usually at the awareness or interest levels.[1] Conferences or retreats to explore competency-based teacher education and certification are excellent for introducing the concept. When such conferences are held in new environments, people appear to be more conducive to the change process. The outline of one such conference is included in this section.

When readings on CBTE are studied prior to discussions, they stimulate interest. A number of resources on CBTE and on individualizing instruction are identified and annotated in the following section to aide the program designer. These may be used for information input, clarification of concepts, or analysis of CBTE as a philosophic system. The resources included here continue to expand and may be supplemented with others.

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[1] These are the first two of six phases of the dissemination process. Others include analysis, trial, adoption, and integration. This is treated more fully in Chapter 5.

RESOURCES IN COMPETENCY-BASED TEACHER EDUCATION

Theodore E. Andrews, *MANCHESTER INTERVIEW: COMPETENCY-BASED TEACHER EDUCATION/CERTIFICATION* (Washington, D.C.: American Association of Colleges for Teacher Education, 1972).

A hypothetical interview by a staff member of the *MANCHESTER MAGAZINE* in 1980 inquiring about CBTE and teacher centers in the United States.

James H. Block (ed.), *MASTERY LEARNING* (New York: Holt, Tinehart and Winston, 1971).

Includes selected papers on mastery learning by Benjamin Bloom, John B. Carroll, and Peter W. Airasian.

Benjamin Bloom, "Learning for Mastery," *EVALUATION COMMENT*, 1:2, 1968.

In this important article, Bloom develops a theoretical rationale for CBTE programs.

Harry Broudy, *A CRITIQUE OF PBTE* (Washington, D.C.: American Association of Colleges for Teacher Education, 1972).

Philosophic analysis of performance-based concepts.

Joel L. Burden and Margaret T. Reagan (eds.), *PERFORMANCE-BASED CERTIFICATION OF SCHOOL PERSONNEL* (Washington, D.C.: ERIC Clearinghouse on Teacher Education, 1971).

Report on a conference held in Florida in 1970 on certification.

Caseel Burke, *THE INDIVIDUALIZED COMPETENCY-BASED SYSTEM OF TEACHER EDUCATION AT WEBER STATE COLLEGE* (Washington, D.C.: American Association of Colleges for Teacher Education, 1972).

Description of an AACTE award-winning CBTE program.

John B. Carroll, "A Model of School Learning," *TEACHERS COLLEGE RECORD*, 63: 723-33, 1963.

Basic model and research base for many CBTE notions.

James Cooper and Wilford Weber, *COMPETENCY-BASED TEACHER EDUCATION: A SCENARIO* (Washington, D.C.: American Association of Colleges for Teacher Education, 1972).

Characteristics of CBTE are lucidly specified through interviews.

M. V. De Vault, Dan W. Anderson, G. E. Dickson (eds.) *NEW DIRECTIONS IN TEACHER EDUCATION: PROBLEMS AND PROSPECTS FOR THE DECADES AHEAD* (Berkeley, California: McCutchan, 2526 Grove St., 1973).

> Written by the directors of the elementary models programs, this volume relates their perceptions and strategies concerning a number of basic CBTE issues.

Stanley Elam, *PERFORMANCE-BASED TEACHER EDUCATION: WHAT IS THE STATE OF THE ART?* (Washington, D.C.: American Association of Colleges for Teacher Education, 1972).

> This paper from the AACTE Committee on Performance-Based Teacher Education summarizes the committee's position and that of several persons currently involved with competency-based programs. Growing out of an invitational conference at Denver in August, 1971, it is one of the best definitive works on the subject.

W. Robert Houston and Robert B. Howsam (eds.), *COMPETENCY-BASED TEACHER EDUCATION: PROGRESS, PROBLEMS, AND PROSPECTS* (Palo Alto, Calif.: Science Research Associates, 1972).

> This book evolved from discussions at the National Conference on Performance-Based Teacher Education, May, 1971, and reports on the following areas: Competency-based teacher education, objectives, curriculum design, evaluation, consortia, certification, and implementation strategies. Each chapter was written by a leading educator who capsuled current thought.

Robert B. Howsam, "Some Basic Concepts," *EDUCATION TODAY* (April, 1972, special journal feature).

> The basic contributions of CBTE are described in this article which formed the basis for a series of Association of Classroom Teachers conferences.

Benjamin Rosner, et al., *THE POWER OF COMPETENCY-BASED TEACHER EDUCATION* (Boston: Allyn Bacon, 1972).

> Theoretical papers dealing with several major developments in education today were written to support the deliberations of USOE Task Force '72; alternative directions for the future are suggested.

Wilford A. Weber, *COMPETENCY-BASED TEACHER EDUCATION*, 1972.

This 22-minute slide-tape, developed for the Teacher Corps, succinctly summarizes the related elements in competency-based programs.

Committee on Performance-Based Teacher Education, in collaboration with the ERIC Clearinghouse on Teacher Education, *PERFORMANCE-BASED TEACHER EDUCATION: AN ANNOTATED BIBLIOGRAPHY* (Washington, D.C.: American Association of Colleges for Teacher Education, 1972).

Awareness of competency-based teacher education programs may be increased by visiting several institutions which are pilot testing such programs. These include:

- Weber State College (Blaine Parkinson)
- Southwest Minnesota State College (Richard Wollin)
- Brigham Young University (Hugh Baird)
- Western Washington University (Herbert Hite)
- Texas Christian University (Herbert LaGrone)
- University of Toledo (George Dickson)
- University of Houston (Robert Houston)
- State University College at Buffalo-Teacher Corps Program (John Masla)
- University of Georgia (Gilbert Shearron)

Written program descriptions from many of the above institutions are also available, but on-site experiences, examinations of materials, and discussions with staff and students clarify procedures and programs.

RESOURCES IN INDIVIDUALIZED INSTRUCTION

In addition to the specific resources related to competency-based teacher education, a number of other publications on individualized instruction may contribute to a conceptualization of a program design.

David W. Beggs, III, and Edward G. Buffie (eds.), *INDEPENDENT STUDY; BOLD NEW VENTURE* (Bloomington: Indiana University Press, 1965).

B. Frank Brown, *EDUCATION BY APPOINTMENT: NEW APPROACHES TO INDEPENDENT STUDY* (West Nyack, New York: Parker Publishing Co., 1968).

Ronald C. Doll (ed.), *INDIVIDUALIZING INSTRUCTION*, 1964 Yearbook of the Association for Supervision and Curriculum Development (Washington, D.C.: The Association, 1964).

Jack V. Edling, *INDIVIDUALIZED INSTRUCTION SLIDE-AUDIO TAPE SETS* (Washington, D.C.: AECT, 1201 Sixteenth Street, N. W., 1970).

Thorwald Esbensen, *WORKING WITH INDIVIDUALIZED INSTRUCTION: THE DULUTH EXPERIENCE* (Palo Alto, Calif.: Fearon, 1968).

Gerald Gleason (ed.), *THE THEORY AND NATURE OF INDEPENDENT LEARNING: A SYMPOSIUM* (Scranton, Penn.: International Textbook Co., 1967).

John I. Goodlad, *SCHOOL, CURRICULUM, AND THE INDIVIDUAL* (Waltham, Mass.: Blaisdell, 1966).

Robert F. Mager, *DEVELOPING ATTITUDE TOWARD LEARNING* (Palo Alto, Calif.: Fearon, 1968).

Don H. Parker, *SCHOOLING FOR INDIVIDUAL EXCELLENCE* (New York: Thomas Nelson and Sons, 1964).

PROMOTING COMMITMENT

Each of the above resources may provide cognitive input about CBTE, but that as such is not adequate. Teacher educators not only must know about competency-based education, its parameters, distinguishing characteristics, antecedents, and promise, but must be actively involved in exploring its impact on their own preparation programs. It is a well-known psychological principle that we are more likely to support that to which we contribute. When faculty actively debate the issues related to new directions and explore their potential, they are more likely to be enthusiastic about the new program. Thus, involvement of all persons who will be contributing to the program is a necessary part of a design strategy.

To initiate discussion, exploration, and analysis, a reactionaire similar to the one included in Appendix A could be employed. Designed by Karl Massanari, this instrument has been a useful stimulus for several groups.

The faculty at the University of Houston explored CBTE in a one-day retreat led by Jack Gant, Florida State Department of Education. The interactive procedures which were used provided an opportunity for individuals to express their feelings about CBTE and to explore aspects of the program. While you may want to modify these procedures, they are outlined in Figure 3 to illustrate the process.

FIGURE 3

FACULTY STUDY CONFERENCE ON CBTE

Materials needed: newsprint, felt pens, name tags, 4 X 6 cards.

Introduction: Some warm-up activities are helpful even when the conference involves colleagues who frequently talk together. A good human relations trainer can provide acceptable exercises.

FIGURE 3 (continued)

1. Each participant writes his questions about CBTE on a 4 X 6 card.
    a. He shares his questions with another person, then they join another pair.
    b. Groups of four participants discuss their questions, and pool them.
    c. They write their group questions on newsprint using a felt pen. Those lists are taped to the wall.
2. Each participant rates his own understanding of CBTE, from 1 as low through 9 as extensive knowledge, and writes this rating on a 4 X 6 card.
3. Establish groups of six persons with varying expertise in CBTE.
    a. Each person finds someone in his category of CBTE knowledge (1-4, 5-6, 7-9).
    b. Three pairs of participants meet together to discuss their questions on CBTE.
    c. Each person passes his questions to others in the group, reads what others have asked; they examine questions on newsprint.
4. General presentation on CBTE to group (show slide-tape by Wilford A. Weber; talk by someone; and/or examination by groups of CBTE materials (previously listed).
5. Discussion of CBTE by small groups.

FIGURE 3 (continued)

6. Each participant rates his commitment (not knowledge) to contributing to CBTE on a 1-10 scale with 1 low.
    a. Rating as of now.
    b. Potential commitment if certain things happen.
    c. List "ifs," and turn card in.
7. Discuss CBTE as a total group.
8. On a chart, describe the current and potential commitment of participants.
9. Discuss next steps in exploring and adopting CBTE.

PROGRAM DEVELOPMENT

The second area of concern during the design phase is program development. Faculty in-service activities, changes in organizational structures, and plans for comprehensive change all contribute to a more effective preparation program for teachers. But the design of that program is also the catalytic agent for renewing each of the other targets of change.

Program designers often explicitly state several underlying notions which provide direction for further developmental tasks; i.e., *program goals*, *institutional resources*, *constraints*, *targets of change process*, *program assumptions*, and *theoretical constructs*. The more explicit these are, the more readily they can be used as guideposts.

CBTE provides a viable way to reconceptualize the teacher education program. Some institutions have continued to patch the old fabric of the teacher education program by changing the *name* to CBTE without altering the substance, approach, or commitment. Such a process destroys the power of CBTE. The underlying assumptions of CBTE are so drastically different from traditional approaches that they are incompatible.

COMPETENCY/PERFORMANCE/OR PROFICIENCY-BASED TEACHER EDUCATION

Educators may choose to call this new movement *competency-based* or *performance-based* teacher education and often debate the merits of their choice. This section will speculate upon their meanings and suggest a relationship between the two terms. A number of references were identified in the previous section which further amplify meanings of the CBTE concept.

CONSIDER THE FIDDLE. When one analyzes the performance of a violin soloist at the symphony, certain skills become apparent. He must be able to read music, properly handle the bow, tune the instrument, and have a certain stage presence. So must the beginner at the seventh grade concert. *The differences are in the criteria which are acceptable* for an adequate performance. What is more than adequate in one instance is unacceptable in another. Further, the seventh grader may be as skilled as the professional in many aspects of the performance; he may properly hold the bow and read music, and yet not be able to coordinate these in the total program.

The parallel in teaching is obvious; the prospective teacher may perform adequately in asking higher order questions, establishing set, and writing criterion-referenced objectives, not yet be able to integrate these skills and employ them appropriately in given circumstances. Beginning teachers may be judged competent and show promise for further development, but three or five years later, that same level of competence would be inadequate. *This implies that the profession define a series of competency requirements which might increase in complexity and scope as the teacher gains experience.* Such criteria, too, could form one basis for differentiated school staffing.

Personal styles of demonstrating required competencies lead to different but often equally effective teaching strategies, just as violinists interpret music in a variety of ways. Indeed, the more competent the violinist the more likely he is to extend the interpretation and not play the music rigidly and precisely as written. Jascha Heifitz and Yehudi Menhuin can play the same composition, but interpret it quite differently--yet both are acclaimed as virtuosos.

So it is with teachers; master teachers perform in a wide variety of styles. Our own research indicates that some teaching virtuosos are child-focusers, some task-focusers, some pragmatists.[2] Yet all are professional educators. One is concerned primarily with how children feel; the second emphasizes completion of tasks and projects; the third considers situations variables in making decisions. This study, the research of Bruce

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[2] Other teaching stances include Time-Servers, Contented Conformists, Ambivalents, and Alienated. For a report of the research, see Ann G. Olmsted, Frank Blackington III, and W. Robert Houston, *TEACHER STANCES* (East Lansing: Michigan State University, 1971).

Joyce, and common sense suggest that effective teachers employ a variety of styles. Two hypotheses would logically follow. While a competency core may exist, *the varied teacher personalities, styles, and stances preclude definition of a single set of requirements for all teachers.* Further, *the more a person is proficient as a teacher, the more likely his professional style is to be unique.*

Returning to the analogy of the violinist, note that the lowest level of performance demonstration was at the *single skill level* (correctly holding the bow, reading music, asking higher order questions). These were then combined into a *performance* and if the individual met stipulated criteria which were appropriate to the objectives of that performance (seventh grade orchestra or New York Philharmonic--concert or practice), he was judged *competent.* Thus competence is *situational* (contextual).

A parallel might be drawn between measurement and evaluation. One measures a performance but *evaluates* competence. In assessing a violinist, a diver, or a teacher's verbal interaction with children, rating scales, tests, observations, or other instruments may be employed. They describe *what is*, while evaluation of those data considers the adequacy of measured phenomena within a context and value orientation.

Competence, too, is demonstrated over a longer period of time; a single performance is not an indicator of competence. Thus, a teacher's typical performance may be of such quality to be judged "competent", yet occasionally he may have poor performances. Competent athletes, speakers, or musicians all have "off days"; so do competent teachers.

Teacher education programs are concerned more with competence than individual performance even though some judgments are necessary in assessing competence. Further, a program of teacher development is goal (or goals) oriented; and it lasts an entire lifetime. A professional seldom attains his goals because his goals change and evolve as he develops. Each individual, as Santayana reminds us, chooses his own personal star toward which he strives.

COMPETENCY-BASED OR PROFICIENCY-DIRECTED? When quality of performance is considered, two concepts aid in clarifying the issues: competency and proficiency. These two terms are defined by the *AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE* as follows:

- *competent* - properly or well-qualified; capable. 2. Adequate for the purpose; suitable, sufficient. 3. Legally qualified or fit; admissible.
- *proficient* - performing in a given art, skill, or branch of learning with expert correctness and facility ...proficient implies a high degree of competence through training.

Considering their objectives, perhaps we should refer to *competency-based certification and proficiency-directed teacher education*. In the former, we are considering a base, a legal standard which tends to protect society from incompetents; proficiency, on the other hand, more nearly describes the scope, objectives, and structure of teacher education. Teacher education seeks to aid prospective and in-service teachers meet minimum certification standards, but it goes far beyond this; it encourages teachers and the profession to seek maximum expertise. Further, while competency may refer to minimum standards below which no one is acceptable, proficiency can be multidimensional, reflecting the varied needs of task focusers, child-focusers, and pragmatists; of varied instructional assignments; and in urban or suburban environments.

PERFORMANCE OR COMPETENCE? As one talks to proponents of competency-based and performance-based teacher education terminology, it becomes abundantly clear that they refer to the same movement. Advocates of performance-based terminology refer to the *way in which teachers demonstrate teaching knowledge and skills*. That demonstration is observable (and their objectives are to "write," "do," "describe;" not "understand" or "perceive" which are nonobservable). Further, performance reminds us that knowledge of content and teaching strategies is not sufficient in teaching--overt action is important.

Competency-based emphasizes a *minimum standard*; it adds criterion-levels, value orientations, and quality to the definition of the movement. While competency advocates note three levels for criteria--cognitive, performance, and consequence[3]--

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[3] More explicit descriptions of objectives are contained in Chapter 1.

they press for the latter as the most significant measure of effectiveness. Performance advocates, also recognizing consequence as the ultimate test of an individual's effectiveness, point out that many intervening variables affect results (pupil ability, interest, motivation, availability of resources). They stress that our present understanding of these variables and our inability to control them adequately in field settings preclude consequence objectives as realistic requirements. Thus, objectives requiring performance become the major ones in a teacher preparation program, and performance-based is more descriptive as a generic name for this movement.

Both performance-based and competency-based express important elements of the movement -- one focusing on objectives, the other on criteria. Both are useful, not conflicting. Exploration of them provides a useful process through which the central core and parameters of competency/performance/proficiency-based teacher education are identified and employed to improve education.

SPECIFYING POPULATIONS, CONSTRAINTS, AND ASSUMPTIONS

When program developers specify several factors related to designing a CBTE program, the viability of the program is enhanced. These are briefly identified in the following paragraphs. They provide a frame-of-reference for other program elements.

TARGETS OF CHANGE. Is the program designed for undergraduates or graduates? With or without teaching experience? To teach children with special characteristics (bilingual), poor, urban, exceptional (physically or educationally, age, etc.)? Are schools involved in the training process? If so, is their faculty to be retrained so they too can demonstrate the expected competencies?

CONSTRAINTS. Does the location of the college pose constraints on teacher training experiences? Fiscal and human resource limitations? Time constraints? Legislative or state education department requirements?

SPECIFIC ASSUMPTIONS. Prior to identifying the goals and objectives of a program, developers often identify the *assumptions* upon which the program is to be based. These often refer to, but are not limited to, assumptions about individual differences, learning, societal forces, teacher roles, schools and education, and institutions. These basic assumptions are often beliefs or professional hunches, sometimes based on research and sometimes based on environmental conditions.

Illustrative assumptions are reproduced below. Perhaps you disagree with some or all of them. By making them explicit, at least a dialog could be initiated, with more compatible program goals and procedures evolving from them. Attempting to identify assumptions becomes a useful way for staff to initiate discussions about teacher education. For many, it is less threatening than beginning first to identify goals and objectives; indeed, the process may be as important as the product.

FIGURE 4

ILLUSTRATIVE PROGRAM ASSUMPTIONS

1. Learning tends to be more effective when the individual:
   a. Actively participates in learning experiences
   b. Participates in selecting what he is to learn
   c. Receives feedback on results soon after response is made
   d. Expects to succeed
   e. Is expected by others whom he respects to succeed
   f. Experiences success
   g. Selects and uses his own learning style
   h. Possesses a positive attitude toward self
   i. Perceives learning experiences as relevant to satisfying his own needs
2. School responsiveness and leadership tend to increase as a result of continual experimentation.
3. Creativity tends to be enhanced in an open flexible system.
4. Teacher education is a life-long process.
5. The school as an institution is rapidly changing as a result of technology, societal changes, and political factors, thus teachers should be prepared to be receptive to change.

A second step can include the specification of *propositions* derived from the assumptions. Propositions can be drawn as implications for the teacher education process or the teacher education program. From the assumption:

> Teachers tend to model their teaching on selected teaching practices they have experienced;

three propositions can be drawn:

1. Teacher education programs provide a variety of teaching modes for teacher education students to experience.
2. Teacher education programs exemplify what they explicate.
3. Students observe and work with effective classroom teachers who employ a variety of approaches.

An alternate mode for agreeing upon assumptions is based on a refinement process. An initial set of assumptions is specified or drawn from the various persons engaged in the process then recorded on a form such as that reproduced below:

FIGURE 5

PROCESS CHART FOR REFINING ASSUMPTIONS

Tentative Statement	Agree? or Disagree?	Could Agree If Statement Was Changed to Read..
Learning tends to be more effective when the individual: 1. Actively participates in learning experience		

FIGURE 5 (CONTINUED)

Tentative Statement	Agree? or Disagree?	Could Agree If Statement Was Changed to Read..
2. Participates in selecting what he is to learn.		
3. Receives feedback on results soon after response is made.		
Additional Assumptions:		

An excellent source for delineating program assumptions, goals, and objectives has been designed in modular form at the University of Georgia. This module is a self-instructional set of learning materials designed to aid in preparing a theoretical viewpoint when developing CBTE. The module package includes the following parts:

C. E. Johnson and G. F. Shearron, *SPECIFYING ASSUMPTIONS, GOALS AND OBJECTIVES FOR TEACHER EDUCATION.*

C. E. Johnson and G. F. Shearron, and D. A. Payne, *STUDY GUIDE FOR PROFICIENCY MODULE: SPECIFYING ASSUMPTIONS, GOALS AND OBJECTIVES FOR COMPETENCY-BASED TEACHER EDUCATION PROGRAMS.*

C. E. Johnson,and G. F. Shearron, *SELF-ASSESSMENT GUIDE FOR PROFICIENCY MODULE: SPECIFYING ASSUMPTIONS, GOALS AND OBJECTIVES FOR COMPETENCY-BASED TEACHER EDUCATION PROGRAMS* (Athens, Georgia: Georgia Educational Models, College of Education, University of Georgia, 1972).

DETERMINING OBJECTIVES

Thousands of research studies have contributed little to the science of teacher education or to the identification of crucial competencies for teachers. Thus, program designers often founder as they attempt to identify program elements. Several approaches to specifying teacher competencies have been employed or are possible to use. One approach may be selected and modified, or a combination of approaches may be utilized.

PROGRAM TRANSLATION. In the first approach, the staff simply reformulates current courses. The current requirements are rewritten as behavioral objectives for each course, with perhaps institution of some changes in the mode of instruction. In some colleges, one course is piloted before others are translated to competency-based instruction. After an initial trial in which students are limited by terms or semesters, time constraints may or may not be lifted.

This approach is diagrammed in Figure 6. Mathematics and Science Methods courses are translated to CBTE as pilots prior to each of the courses being so redefined. Note that in this approach each course is independently revised to CBTE. Little or no attempt is made to reformulate or reconceptualize the total program.

FIGURE 6

ISOLATED COURSE PROGRAM TRANSLATION

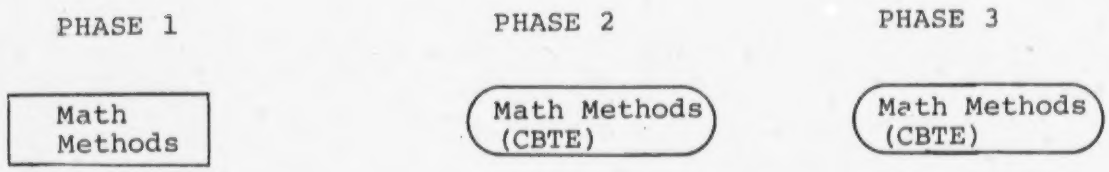
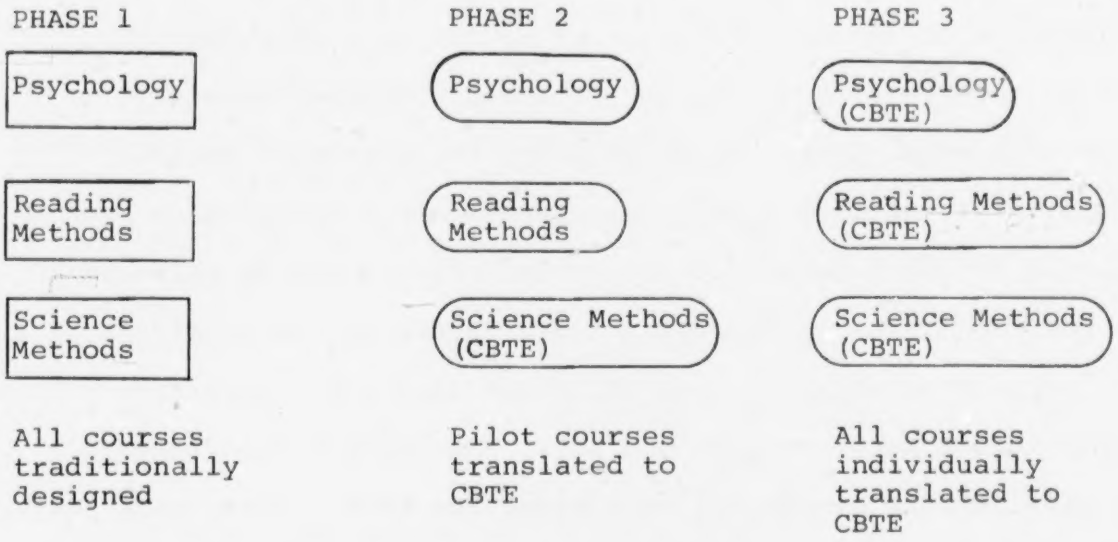


FIGURE 6 (CONTINUED)

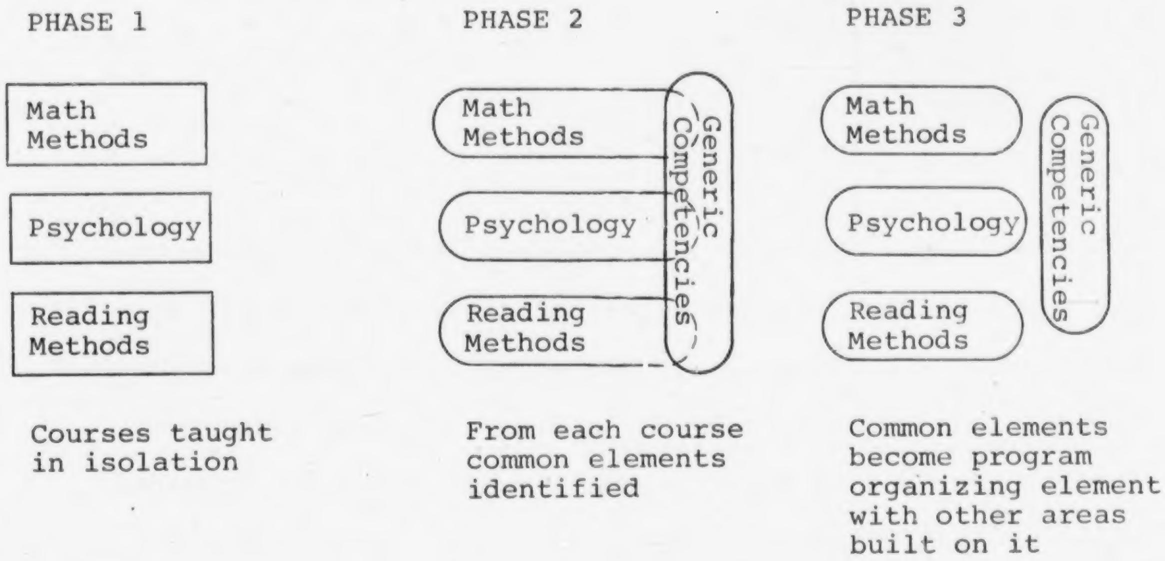

PHASE 1
PHASE 2
PHASE 3
Psychology
Psychology
Psychology (CBTE)
Reading Methods
Reading Methods
Reading Methods (CBTE)
Science Methods
Science Methods (CBTE)
Science Methods (CBTE)
All courses traditionally designed
Pilot courses translated to CBTE
All courses individually translated to CBTE

In an extension of the Course Translation approach, a fourth phase is added to the process. After each individual course has been reformulated in CBTE terminology, common elements or duplicated requirements are identified and handled as a separate course. Sometimes the name of the unit of instruction is changed from "course" to "component" or "module," but such alterations do not mask the typically minor nature of underlying programmatic changes.

In a variation of this theme, the common aspects of each part of the program are identified as "generic" teaching competencies. Specific methods courses, student teaching or internship, and psychological and sociological courses then build on this central core, as illustrated in Figure 7.

FIGURE 7

SEPARATE COURSES TRANSLATED INTO GENERIC
TEACHING COMPETENCIES WITH SPECIAL AREAS


PHASE 1
PHASE 2
PHASE 3
Math Methods
Psychology
Reading Methods
Math Methods
Psychology
Reading Methods
Generic Competencies
Math Methods
Psychology
Reading Methods
Generic Competencies
Courses taught in isolation
From each course common elements identified
Common elements become program organizing element with other areas built on it

The program translation method is perhaps the easiest and most expedient approach to changing to Competency-Based Teacher Education. Its primary disadvantage is that total program review and reconstitution is limited. Other approaches to be described permit the teacher educator to reconsider the teacher preparation program from a new perspective and, after having done so, to make major changes in current practice.

TASK ANALYSIS. Sometimes referred to as role analysis, in this approach the teacher is observed in the act of teaching. These observation records are then analyzed and a teacher preparation curriculum based on that analysis. Hours of observation are required to collect data, which may be written and translated into competencies through a three-column instrument.

Observations	Notes of Observations	Demonstrated Competencies

The first column includes a running diary of precisely what the teacher was doing; i.e., wrote day's assignments on chalkboard, signed absence slip for child, explained assignments to total class, called first group to reading circle, answered child's question about mathematics lesson, introduced new vocabulary words to reading group, and so on. The second column includes notes by the observer on the teacher's actions--possible courses for the actions, what children were doing, comments, explanations, and speculations which clarify the observations. In the third column, on-site observations and notes are translated into competencies and instructional objectives. Teacher educators may make the observations outlined above, or they may draw from observations of students, trained observers, or others.

A second procedure for making a task analysis requests teachers to reconstruct their daily activity log, and to identify major competencies they feel are necessary for accomplishing such activities.

In the third task analysis process, teachers and other educational workers speculate upon what effective teachers actually do. In Huntsville, Alabama and in Houston, groups of educators responded first individually, then in small-group-interaction to the question, "What does an effective teacher do when he...?" The question was concluded using subgoals such as "...administers and interprets assessment procedures?" The 36 subgoals which stimulated discussion in Houston are listed in Figure 8. Another group might characterize teacher competencies in a different way, or modify this listing, but the process does elicit explicit competencies required of teachers. These in turn can be written in greater detail as specific behavioral objectives.

FIGURE 8

TEACHER COMPETENCIES

The following list of teacher competencies are stated at a subgoal level; that is, they include a behavioral statement but not the criteria for successful demonstration of the competence nor the conditions under which it is to be demonstrated.

I. THE TEACHER AND STUDENTS: DESIGNING AND EVALUATING

DIAGNOSIS AND EVALUATION

1. Administers and interprets assessment procedures; i.e., standardized tests, sociometric techniques, etc.
2. Designs and uses teacher-made diagnostic tests.
3. Collects valid data through pupil interviews using techniques such as those specified by Project.
4. Describes environment, values, and needs of students; familiar with background and language of students.

FIGURE 8 (CONTINUED)

ORGANIZING CLASSROOM

5. Groups students on basis of data.
6. Makes resources and materials accessible to students.
7. Plans for routine tasks.

GOALS AND OBJECTIVES

8. Identifies goals and objectives appropriate to student needs.
9. Organizes instruction around goals and objectives.
10. States correctly criterion-referenced objectives.

PLANNING

11. Plans daily to contribute to long-range goals.
12. Sequences activities and experiences logically and psychologically.

II. THE TEACHER AND STUDENTS: INTERACTION

COMMUNICATION

13. Counsels students with personal problems.
14. Asks higher-order questions.
15. Presents instruction using inductive and deductive procedures.
16. Gives clear, explicit directions to students.
17. Responds to "coping" behavior of students.
18. Identifies clues to student misconception or confusion.

INSTRUCTION

19. Establishes set (motivation, transitions, classroom environmental conditions) varied and appropriate activities (for analogy through stories).
20. Employs a variety of instructional strategies (programmed instruction, games, and simulation).
21. Utilizes instructional materials and resources.
22. Individualizes instruction.
23. Plans activities with children.

MANAGEMENT

24. Uses positive reinforcement patterns with students.
25. Manages classroom environment.
26. Manages deviant behavior.

FIGURE 8 (CONTINUED)

INTERPERSONAL

27. Builds self-awareness and self-concepts in students.
28. Develops understanding of cultural pluralism concepts in students.
29. Demonstrates sensitivity to others.

EVALUATION

30. Monitors classroom interaction and modifies plans on basis of feedback.

III. THE PROFESSIONAL TEACHER

SELF-IMPROVEMENT

31. Reacts with sensitivity to needs and feelings of others.
32. Adapts to new and/or confusing situations readily.
33. Engages in a designed professional development program.
34. Evaluates teaching behavior using coded instruments (interaction analysis, check lists, etc.) and plans for change on basis of results and acts on it.

COLLEAGUES AND OTHER PROFESSIONALS

35. Works effectively in an educational team.
36. Evaluates effectiveness of school program and contributes to improvement efforts.

Other educational workers can employ a similar process. For example, the principals in Area 2, Houston School District undertook a self-study by defining their responsibilities in much the same way as described in Figure 5. Specific objectives, however, were explicitly related to the school and its clientele to which the principal was assigned. While the competency instrument suggested specific objectives, these were modified by the principal in most cases to meet his particular situation.[4]

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[4] A complete listing of objectives may be obtained by writing W. Robert Houston, 444 Education, University of Houston, Houston, Texas 77004.

In a fourth procedure which employs task analysis, teachers with similar approaches to instruction are grouped together prior to task analyses. Thus the variety of different successful styles of teaching are not blurred by combining them. Bruce Joyce has described four basic teaching styles which could form the organizational basis for differentiated task analysis. The four teacher models are: "(1) those oriented toward social relations and toward the relation between man and his culture and which draw upon social sources; (2) those which draw on information processing systems and descriptions of human capacity for processing information; (3) those which draw on personality development, the processes of personal construction of reality, and the capacity to function as an integrated personality as the major source; (4) those developed from an analysis of the processes by which human behavior is shaped and reinforced."[5] While Joyce does not indicate that these four teaching styles are the only ones, they do provide insight into the differences among teachers which are relevant for those who are designing CBTE programs.

In the Teacher Stance study previously discussed, seven stances were identified; three defined as professional, two technological, and two disfunctional. The three professional stances were classified as Child-focusers, Task-focusers, and

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[5] Bruce R. Joyce and Marsha Weil, *MODELS OF TEACHING* (Englewood Cliffs, N.J.: Prentice-Hall, 1972), p. 8.

Pragmatists.[6] While teachers in each category functioned differently, the common demoninator was their professional devotion to teaching and the effectiveness of their results. Even if it is assumed that preparation programs should be designed to educate only professionally effective teachers, this range of personal stances argues for designed variations in programming and program requirements.

NEEDS OF SCHOOL LEARNERS. In the third approach to program design, the children themselves are studied. Their ambitions, values, and perspectives form the basis for their curriculum. In what ways does the school program accommodate the needs of children? How should it? When the school program has been developed, the personnel needs are specified; and from this, teacher competencies deduced. In the elementary models program, the University of Georgia[7] employed this approach in designing a teacher education curriculum.

> Once the elementary school objectives were determined, pupil learning behaviors which would guide children in acquiring characteristics represented by these objectives could be identified. From these teacher teaching behaviors, the core for the job analysis could be formulated.[8]

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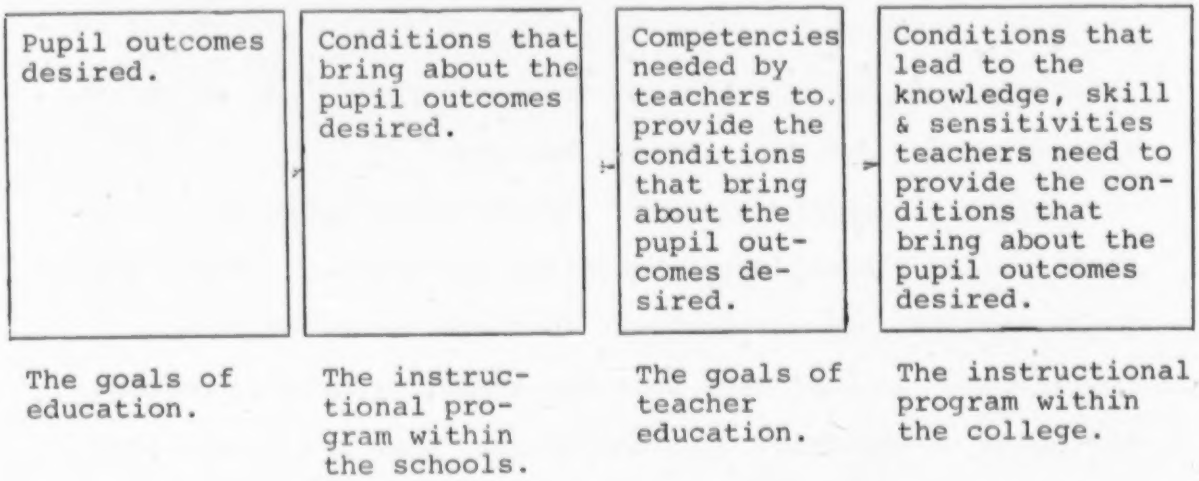
[6] Ann Olmsted, et al., op cit.

[7] Charles E. Johnson and Gilbert F. Shearron, *GEORGIA EDUCATIONAL MODEL SPECIFICATIONS FOR THE PREPARATION OF ELEMENTARY TEACHERS*. Final Report USOE Project No. 8-9024 (Athens, Georgia: University of Georgia, 1968).

[8] Ibid, p. 1-9.

The process employed in designing learner-oriented teacher education programs was outlined in the Oregon Elementary Model Feasibility Study.[9]


Pupil outcomes desired.
Conditions that bring about the pupil outcomes desired.
Competencies needed by teachers to provide the conditions that bring about the pupil outcomes desired.
Conditions that lead to the knowledge, skill & sensitivities teachers need to provide the conditions that bring about the pupil outcomes desired.
The goals of education.
The instructional program within the schools.
The goals of teacher education.
The instructional program within the college.

This approach to teacher education assumes that a direct relation can be derived between pupil objectives, teacher actions, and teacher training requirements. While basic in its intent, it sometimes suffers from the many intervening factors between the teacher education program and pupil growth and development in the school.

NEEDS ASSESSMENT. The fourth approach is similar to the previous, in that it too examines the consequences of teacher action and then formulates a teacher education program to prepare graduates to cope with those consequences. In this approach, the needs of society or the needs of a particular school, community, population subculture, or other target group are assessed. What changes are desirable for them? How will they be affected by an evolving societal and technological world? From this needs assessment, the specifications for a teacher education program are deduced.

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[9] H. Del Schalock, et al. (ed.) *A PLAN FOR MANAGING THE DEVELOPMENT, IMPLEMENTATION AND OPERATION OF A MODEL ELEMENTARY TEACHER EDUCATION PROGRAM* (Monmouth, Ore.: Oregon College of Education, 1970), p. 6.

The assumption is that knowledge of the real and vital needs of society can be translated into school programs for children and youth, and consequently into training programs for educational workers. The rapidly evolving needs and emphases today preclude our stopping the progress while we obtain a fix on societal needs and the implications for training. Often the need is no longer critical before the first trainee has completed the program designed to cope with that need. Nevertheless, this approach is important, and deserves consideration by anyone proposing to revitalize teacher education.

THEORETICAL. In the fifth approach, a theoretical position is assumed and the teacher education programs built around that position. Perhaps the best example of this approach is the Michigan State University elementary model.[10] The authors hypothesized that the effective teacher (1) is an active student of human behavior; that is, a practicing behavioral scientist; and (2) employs a professional clinical style which "denotes the particular and stylized set of behaviors and mental processes of a practitioner who has been specifically trained to utilize his client-related experience as a continuing learning experience through which to improve his skills and increase his knowledge. The clinical behavior style appropriate for a professional teacher consists of six phases: describing, analyzing, hypothesizing, prescribing, treating, and observing consequences of actions. The last activity, observing consequences of the treatment administered, in turn leads to the first, describing the changed situation, to begin a recycling of feedback."[11]

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[10] W. Robert Houston, (ed.), *BEHAVIORAL SCIENCE ELEMENTARY TEACHER EDUCATION PROGRAM*, Final Report, USOE Project 8-9025 (East Lansing, Mich., Michigan State University, 1968).

The Michigan State University staff identified specific assumptions upon which the program was based, theoretical constructs supporting it, and then derived program training elements designed to educate teachers who were practicing behavioral scientists who employed the clinical behavior style in rational decision making.

In a similar procedure, Bruce Joyce designed a preparation program for the "teacher innovator."[12] He hypothesized that effective teachers are those who feel free to combine personal creativity with ability to work with others in an innovative rather than imitative fashion.

At Illinois State University, faculty in the social sciences from the Colleges of Arts and Science and from Education posited that effective social science specialists in the elementary school would be able to make, assess, and draw implications from hypotheses about social phenomena. From this basic stance, a number of more specific objectives were derived, some of which are listed in Figure 9.[13]

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[11] Ibid., p. A-4.

[12] Bruce Joyce, (ed.), COLUMBIA UNIVERSITY MODEL PROGRAM, Final Report USOE Project No. 8-9019, (New York: Teachers College, Columbia, 1968).

FIGURE 9

COMPETENCIES IN FORMULATING AND TESTING HYPOTHESES

PART 1. FORMULATION OF TESTABLE HYPOTHESES

GENERAL OBJECTIVE: The social science specialist teacher will be able to generate testable hypotheses about social phenomena consistent with the scientific goals of description, explanation, and/or prediction.

1. RECOGNITION OF THE HYPOTHESIS FORM OF A STATEMENT

    a. Given a list of statements, the student will be able to differentiate between hypotheses, analytical statements, value statements, and definitional statements.

    b. Given a paragraph, the student will be able to pick out the hypotheses from other statements in the paragraph.

    c. The student will be able to recall the components of an adequate hypothesis and the definition of the components.

    d. Given an hypothesis or a non-hypothesis, the student will be able to demonstrate how it meets, or fails to meet, the criteria.

2. CONSTRUCTION OF HYPOTHESES

    a. Given a data table about *a*, *b*, *c*, and *d*, the student will be able to generate an hypothesis about the relationship between *a* and *b*, and the relationship between *a* and *c* with the effects of *d* being controlled.

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[13] Horace Aubertine, et al. *ELEMENTARY TEACHER EDUCATION MODEL PROGRAM FOR SOCIAL SCIENCE MAJORS: AN INTERDISPLINARY APPROACH* (Normal, Ill.: Illinois State University, 1972).

FIGURE 9 (CONTINUED)

b. Given a set of data in raw form, the student will be able to recognize hypotheses which are consistent with the data, and those which are inconsistent with the data.

c. Given a set of data in raw form, the student will be able to generate hypotheses which are consistent with the data.

d. Given data, the student will be able to link two or more hypotheses via common elements to constitute a simple theory.

e. Given a simple statement of a theory, the student will be able to recognize hypotheses which are consistent with the theory.

f. Given a simple statement of a theory, the student will be able to generate hypotheses which are consistent with the theory.

3. USE OF CONTROL TECHNIQUES

a. Given a list of hypotheses, the student will be able to recognize those which are in "causal" form, and differentiate between causal and noncausal.

b. Given a noncausal hypothesis, the student will be able to generate an explanation of probability as applied to occurrence of noncausal relationships.

c. Given an hypothesis, the student will be able to identify the independent, dependent, and control variables.

d. Given the description of a situation in which a causal relationship may be hypothesized, the student will be able to generate a causal hypothesis which meets the criteria for both hypothesis form of statement and causal relationship.

e. Given a set of research "designs" produced by students, the student will be able to recognize those designs in which controls are present, and to describe how the controls are operative.

f. The student will be able to generate a design where the independent variable is controlled to demonstrate the effect in dependent variables.

4. EVALUATE SIGNIFICANCE OF HYPOTHESIS

a. Given a set of hypotheses, the student will be able to recognize those which have no significance beyond

FIGURE 9 (CONTINUED)

instructional value, as compared to those which may hold for single instances, and those which generalize to a larger number of randomly selected cases.

b. The student will be able to generate hypotheses with practical significance (heuristic or instructional value) which would be appropriate in relation to fourth through sixth grade thought patterns.

PART 2. HYPOTHESIS TESTING AND EVALUATION

GENERAL OBJECTIVE: The social science specialist teacher will be able to locate and use data to evaluate and test hypotheses.

a. Given an hypothesis and a body of data, the student will be able to match data descriptions with definition in hypothesis.

b. Given an hypothesis, the student will be able to generate possible sources of data for testing the hypothesis.

c. Given a universe of data, the student will be able to *sort* the data in terms of (1) how data were gathered, (2) correspondence between conceptual and empirical definitions, etc.

d. The student will be able to contrast the outcome of the hypothesis test to conclusions based on common sense and to resolve the discrepancies between the two.

e. Given an hypothesis and data which fail to support it, the student will be able to revise the hypothesis for further research.

f. Given an hypothesis and data which support it, the student will be able to relate the hypothesis to other hypotheses or some body of existing theory.

CLUSTER APPROACH. In this approach, program designers first identify a number of curriculum areas, then deductively reduce them to statements of greater and greater specificity until finally behavioral objectives are derived. This approach was employed by Claude Cheek and a state-wide team in Texas to design a special education program. Four successive levels of objectives were identified: cluster, competency, competency component, and behavioral objective. After the clusters were identified, each was analyzed into several competencies, each of which was then subdivided into several more explicit competency components, and finally each competency component was restated as a number of behavioral objectives. This is illustrated in Figure 10.

The cluster approach has also been employed by Edward L. Meyen to design a program for curriculum coordinators and supervisors.[14] This approach has the advantage of aiding the developer to progressively focus on more restricted and more specific aspects of the curriculum, thus eliminating the hopelessly diffuse problem of simultaneously dealing with specific objectives for the total program. Its disadvantage is in its initial assumption that the clusters indeed are the basic building blocks of the curriculum, and that all deductively derived objectives are equally important for teachers. An analytical step often follows the specification of behavioral objectives in which they are compared, duplications noted, and the relative importance of objectives assessed.

IN SUMMARY. The heart of CBTE is in the objectives established for its graduates. A CBTE program can be no better than the objectives it specifies, for they determine the context for

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[14] Edward L. Meyen, et al., *PROTOTYPE TRAINING PROGRAM FOR THE PREPARATION OF CURRICULUM CONSULTANTS FOR EXCEPTIONAL CHILDREN*, Interim Report, Project 351359 OEG-0-70-48-8(603), (Columbia, Missouri: Special Education Curriculum Training Center, 1971).

FIGURE 10

SUCCESSIVE STEPS IN CLUSTER APPROACH TO PROGRAM FORMULATION

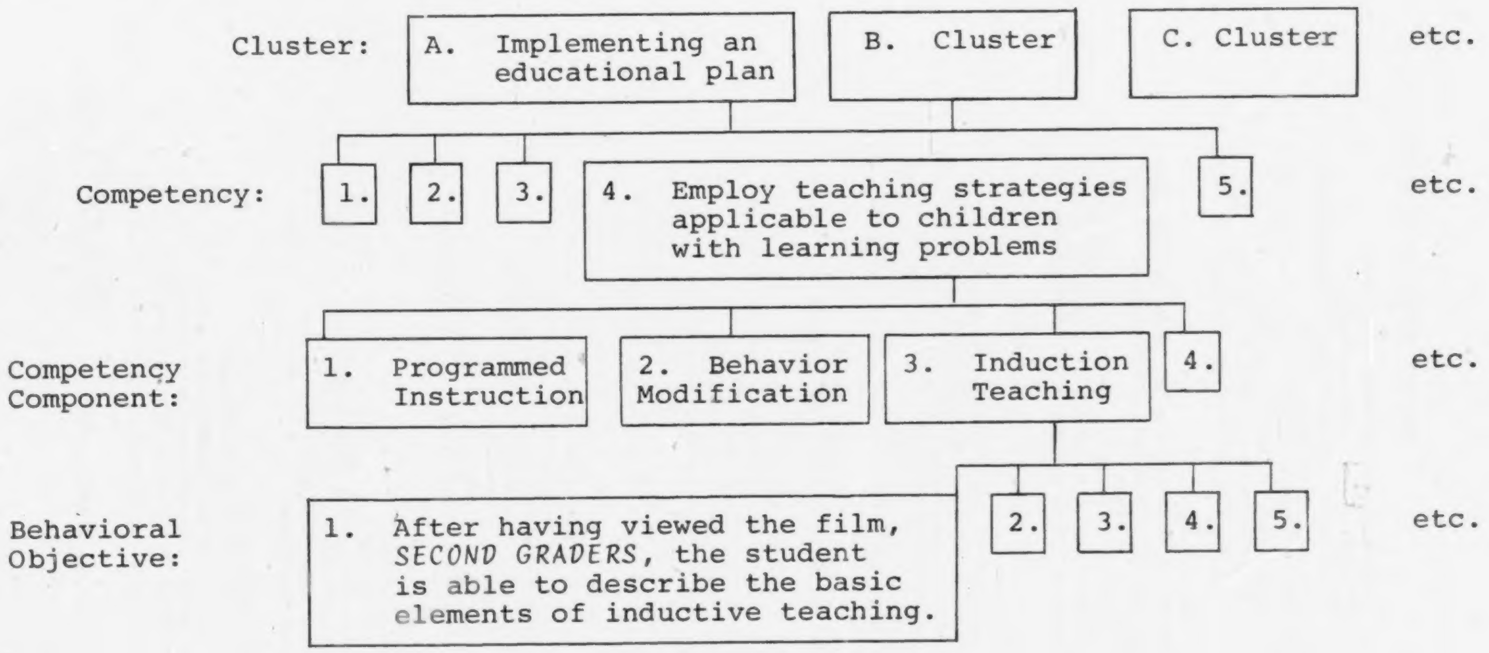
Cluster:
A. Implementing an educational plan
B. Cluster
C. Cluster
etc.
Competency:
1.
2.
3.
4. Employ teaching strategies applicable to children with learning problems
5.
etc.
Competency Component:
1. Programmed Instruction
2. Behavior Modification
3. Induction Teaching
4.
etc.
Behavioral Objective:
1. After having viewed the film, *SECOND GRADERS*, the student is able to describe the basic elements of inductive teaching.
2.
3.
4.
5.
etc.

FIGURE 11

TAXONOMY CATEGORIES IN DODL SYSTEM

TEACHER BEHAVIOR CATEGORIES (TB)

10 Assessing and Evaluating Student Behavior
  11 - Selecting assessment instruments
  12 - Designing/developing assessment instruments
  13 - Collecting and Quantifying data
  14 - Diagnosing student difficulties or abilities
  15 - Summarizing and interpreting data
  16 - Involving students in self-evaluation
  17 - Diagnosing student affective characteristics

20 Planning Instruction
  21 - Selecting/specifying goals, aims, objectives
  22 - Selecting instructional strategies
  23 - Organizing students
  24 - Selecting or developing materials/activities
  25 - Collaborating with others in planning
  26 - Developing classroom procedures/routines

30 Conducting or Implementing Instruction
  31 - Structuring
  32 - Motivating and reinforcing students
  33 - Conducting discussion/small group activity
  34 - Conducting individual activities
  35 - Providing for Feedback
  36 - Presenting information
  37 - Utilizing inductive or deductive thinking, or problem solving
  38 - Questioning and responding
  39 - Operating hardward (AV equipment)

40 Performing Administrative Duties
  41 - Supervising aides, tutors, volunteers, etc.
  42 - Conducting conferences
  43 - Arranging physical environment
  44 - Establishing/maintaining procedures and routines
  45 - Maintaining records
  46 - Organizing materials, equipment, etc.

50 Communicating
  51 - Initiating communication verbal/non-verbal
  52 - Initiating communication verbal
  53 - Initiating communication non-verbal
  54 - Responding to communication verbally/non-verbally
  55 - Responding to communication verbally
  56 - Responding to communication non-verbally

60 Developing Personal Skills
  61 - Accepting self
  62 - Evaluating self
  63 - Planning for self-improvement
  64 - Improving self
  65 - Interacting with others
  66 - Solving problems

70 Developing Pupil Self
  71 - Developing pupil self-concept
  72 - Developing social interaction skills
  73 - Developing learning-to-learn skills
  74 - Developing acceptance of responsibility

OBJECT OF CHANGE (CH)

1 - Self (teacher)
2 - Pupil
3 Other human
4 - Situation
5 - Resources

IMPLIED TEACHER (IA) PERFORMANCE ASSESSMENT

1 - Process criterion
2 - Human consequence criterion
3 - Product consequence criterion
4 - Both process/consequence

CONTENT AREA (CA)

01 - Agriculture
02 - Art
03 - Business Education
04 - Distributive Education
05 - Diversified Programs
06 - Driver Education
07 - Exceptional Child Education
08 - Foreign Languages
09 - Health and Safety
10 - Home Economics
11 - Industrial Arts
12 - Industrial Education
13 - Junior High or Middle School Work Experience
14 - Language Arts or English Language Arts
15 - Mathematics
16 - Music
17 - Physical Education
18 - Reading
19 - Science
20 - Social Studies
21 - Technical Education
22 - Adult General Education
24 - Generic Teaching Skills
27 - Drama
28 - Early Childhood
29 - Guidance
30 - Media
31 - Speech

PUPIL LEVEL (PL)

PUPIL LEVEL (PL)

01 - Early Childhood
02 - Elementary
03 - Middle School
04 - Secondary
05 - Adult
06 - All Levels

SCOPE (SC)

01 - Broad Goal Statement
02 - Limited Goal Statement
03 - Specific Competency
04 - Enabling Skill

OUTCOME (OC)

01 - Cognitive

02 - Motor Skills

03 - Affective

04 - Habit

09 - Teacher Process/Skill only

all else. Six procedures for arriving at a set of objectives have been described and illustrated in this section. They can be employed individually or in various combinations to determine the initial set of objectives for initiating a CBTE program. Deciding which approach to employ in the development of a curriculum is all important.

EXTENDING AND VALIDATING OBJECTIVES

Lists of objectives from programs currently implementing CBTE are often available. These can be used as comparisons with your generated list. Normal Dodl has designed a taxonomy of teacher competencies which provides additional information for the designer.[15] The categories in that taxonomy are listed in Figure 11. An illustrative listing of competencies is shown in Figure 12.

FIGURE 12

COMPETENCIES CLASSIFIED ACCORDING TO TEACHER BEHAVIOR IN DODL TAXONOMIC SYSTEM

12 DESIGN AND DEVELOPMENT OF ASSESSMENT PROCEDURES

- Design procedure to diagnose spelling difficulties
- Evaluate validity and reliability of test for language learnings
- Design informal reading inventory for preliminary prescription
- Develop criteria for effectiveness of social studies goals, methods
- Identify behaviors to use as evidence of certain specific learnings
- Design overall, systematic approach to evaluation for system

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[15] Norman Dodl, et al., *A CATALOG OF TEACHER COMPETENCIES -- A WORKING DOCUMENT* (Tallahassee: Florida State University, 1972).

FIGURE 12 (CONTINUED)

- Select screening procedures to identify sensory, health problems
- Design continuing assessment program identifying pupil needs
- Design procedure to identify students who achieved given objectives
- Develop preassessment instruments for specific objectives
- Design an achievement test for a specific class of objectives
- Write test items which adequately sample behavior in objectives
- Evaluate validity and reliability of test

Refining and validating program objectives is continual in the developmental process. Can these competencies discriminate between effective and ineffective teachers? How do participants react to them? Are results clearly stated? These three inquiries illustrate three levels of questions and analyses which lead to program modification and refinement. Chapter 4 discusses these aspects in greater detail.

RESOURCES ON OBJECTIVES

Programs based on clear objectives are more likely to be effective. Drumheller[16] identified four approaches for delineating goals and objectives. When *instructor oriented*, they specify what the teacher does (the instructor will lead a discussion). In the *activity-oriented* approach, the objectives describe a series of activities in which students will participate, assuming that involvement will lead to specific kinds of learning.

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[16] Sidney J. Drumheller, *HANDBOOK OF CURRICULUM DESIGN FOR INDIVIDUALIZED INSTRUCTION: A SYSTEMS APPROACH* (Englewood Cliffs, New Jersey: Educational Technology Publications, 1971), pp. 9-10.

The *learning-oriented (subjective)* approach includes objectives which describe in general terms the concepts and skills the student is to master. Terms like knowing, understanding, being able to, and feeling are indicative of the verbs used to describe how students react. The *behavior-oriented approach (observable and evaluable)* analyzes long-range terminal goals into short-range objectives which are identified in terms of student learning which is specific, observable, and evaluable. Their form often follows this model: "As a result of a learning experience, the student will: (active verb) (precise description of the expected observable behavior).

A growing number of publications are available which aid program designers in specifying instructional objectives. The following list samples those available on *writing objectives*.

Robert J. Armstrong, Terry D. Cornell, R. E. Kraner, and E. W. Roberson, *THE DEVELOPMENT AND EVALUATION OF BEHAVIORAL OBJECTIVES* (Worthington, Ohio: Charles A. Jones Publishing Co., 1970).

Richard W. Burns, *NEW APPROACHES TO BEHAVIORAL OBJECTIVES*, (Dubuque, Iowa: Brown, 1972).

Albert F. Eiss and Mary B. Harbeck, *BEHAVIORAL OBJECTIVES IN THE AFFECTIVE DOMAIN* (Washington, D.C.: National Science Teachers Assn., available from NEA Publications Sales, 1201 Sixteenth St., N.W., Washington, D.C., 1969).

John C. Flanagan, et al., *BEHAVIORAL OBJECTIVES: A GUIDE FOR INDIVIDUALIZING LEARNING* (Westinghouse Learning Corporation).

Robert Kibler, et al., *BEHAVIORAL OBJECTIVES AND INSTRUCTION* (Boston: Allyn and Bacon, 1970).

Robert F. Mager, *PREPARING INSTRUCTIONAL OBJECTIVES* (Palo Alto, California: Fearon, 1967).

Robert F. Mager, *DEVELOPING ATTITUDE TOWARD LEARNING* (Palo Alto, California: Fearon, 1968).

Robert F. Mager and K. M. Beach, *DEVELOPING VOCATIONAL INSTRUCTION* (Palo Alto, California: Fearon, 1967).

H. H. McAshan, *WRITING BEHAVIORAL OBJECTIVES: A NEW APPROACH* (New York: Harper and Row, 1970).

Paul Plowman, *BEHAVIORAL OBJECTIVES: TEACHER SUCCESS THROUGH STUDENT PERFORMANCE* (Chicago: Science Research Associates, 1971).

W. J. Popham, *EDUCATIONAL OBJECTIVES: AN INSTRUCTIONAL PROGRAM* (filmstrips and audio-tape) (Los Angeles: Department of Education, University of California).

General Programmed Teaching, *PRINCIPLES AND PRACTICE OF INSTRUCTIONAL TECHNOLOGY* (filmstrips and audio-tapes-especially nos. 1-5 (Palo Alto, Calif.: General Programmed Teaching, P.O. Box 402).

The following sources discuss the *rationale for using behavioral objectives*:

B. D. Engman, "Behavioral Objectives: Key to Planning" *THE SCIENCE TEACHER*, 35:86-87, October, 1968.

J. F. Garvey, "What and Why Behavioral Objective," *THE INSTRUCTOR*, 77:127, April, 1968.

R. F. Mager, *PREPARING INSTRUCTIONAL OBJECTIVES* (Palo Alto, California: Fearon, 1962), pp. 3-4.

General Programmed Teaching, *PRINCIPLES AND PRACTICES OF INSTRUCTIONAL TECHNOLOGY* (filmstrips and audio-tapes) Number One, slides 1-31 and Number Three.

W. J. Popham, "Probing the Validity of Arguments on Behavioral Goals" A Symposium presentation at the Annual American Education Research Association meeting, Chicago: February, 1968.

J. M. Atkin, "Behavioral Objectives in Curriculum Design: A Cautionary Note," *THE SCIENCE TEACHER*, May, 1968, pp. 27-30.

SEQUENCING OBJECTIVES. Previous sections have discussed the *logical* derivation and development of program objectives. Translating these into a viable sequence for students, however, requires consideration of *psychological* factors. This is more complex and difficult to achieve than in a course-oriented structure where each instructor determines his own content and sequence, and where the time and scope frame-of-reference is far more limited. Factors to consider in sequencing the curriculum might include the following.

1. Cluster objectives so that students can deal with several concurrently.
2. Introduce the student early to the broad perspective of the teacher's role.
3. Provide opportunities for acquiring knowledge, practicing skill in a simulated or limited setting, then in an unrestricted setting.
4. Provide opportunities to learn then practice new skills in several settings on subject areas.
5. Provide opportunities to integrate new skills into the existing repertoire of the student.
6. Design program for pyramiding competencies, so that the individual can build up on previous knowledge and competencies.
7. Provide synthesizing elements in the program.
8. Consider the psychological development of the individual progressing through the program.
9. Provide for feedback loops.

These illustrations of guidelines for sequencing a program may be recognized as assumptions about how people learn. Lists may vary depending upon the assumptions previously accepted.

RESOURCES ON ELEMENTARY TEACHER EDUCATION MODEL REPORTS AND STUDIES

In 1968, the U.S. Office of Education Bureau of Research funded nine institutions to design comprehensive models for training elementary teachers. A year later eight projects were funded to test the feasibility of the generated models. A number of analyses, descriptions, and excerpts from these models have been published. Most of these reports, as well as the models themselves, are available to program developers. They furnish excellent ideas for program objectives, assumptions, and sequences. Following is a list of these reports.

PHASE I REPORTS - THE MODELS

PUBLICATION	ORDER NO.*
Florida State University (Vol. 1)	FS 5.258:58018
Volume II available from EDRS:	ED 030 631
University of Georgia	FS 5.258:58019
University of Massachusetts	FS 5.258:58022
Michigan State University	FS 5.258:58024 Vol. I
	FS 5.258:58024 Vol. II
	FS 5.258:58024 Vol. III
Northwest Regional Educational Laboratory	FS 5.258:58020
Syracuse University	FS 5.258:58016
University of Pittsburgh	FS 5.258:58017
Teachers College, Columbia University	FS 5.258:58023
University of Toledo	FS 5.258:58023
University of Wisconsin	FS 5.258:58025

PHASE I SUMMARIES

Florida State University	ED 032 262
University of Georgia	ED 025 492
University of Massachusetts	ED 033 876
Michigan State University	ED 032 260
Northwest Regional Educational Laboratory	ED 032 261
Syracuse University	ED 032 264

PHASE I REPORTS - THE MODELS (CONTINUED)

PUBLICATIONS	ORDER NO.*
University of Pittsburgh	ED 032 265
Teachers College, Columbia University	ED 033 054
University of Toledo	ED 032 259
University of Wisconsin	(SP 033 528)

*FS - Available from: Superintendent of Documents
U. S. Government Printing Office
Washington, D. C. 20402

ED - Available from: ERIC Document Reproduction Service
P.O. Drawer O
Bethesda, Maryland 20014

REPORTS RELATED TO PHASE I

- Elementary Teacher Education Models - A Summary, *JOURNAL OF RESEARCH AND DEVELOPMENT IN EDUCATION*, Vol. 2, No.3, Spring 1969, $2.00, University of Georgia: Athens, Georgia 30601.

- "Nine Proposals for Elementary Teacher Education, A Description of Plans to Design Exemplary Training Programs," by Nicholas A. Fattu. Based on the original proposals to the U. S. Office of Education in the Spring of 1968, this document summarizes the nine proposed programs which were funded for Phase I. (EDRS No. ED 018 677)

- "Analysis and Evaluation of Plans for Comprehensive Elementary Teacher Education Models," by William E. Engbretson. This document is an analysis of the 71 proposed but unfunded programs of Phase I. (EDRS No. ED 027 268)

- "Some Comments on Nine Elementary Teacher Education Models," by Harry Silberman, adapted from remarks at an American Educational Research Association Conference in November 1968. (EDRS No. ED 029 813)

- "A Comprehensive Bibliography of the Reference Works Used in the Preparation of the Nine Phase I Reports." More than 1500 entries include both primary and secondary sources on many phases of teacher education. (EDRS No. ED 031 460)

- A modified reprint of the University of Georgia *JOURNAL OF RESEARCH AND DEVELOPMENT IN EDUCATION* (Spring 1969 - Volume 2, Number 3), which was devoted to the Phase I models. (GPO No. FS 5.258:58033)

REPORTS RELATED TO PHASE I (Continued)

- "A Reader's Guide to the Comprehensive Models for Preparing Elementary Teachers," the report of a writer's conference jointly sponsored by the ERIC Clearinghouse on Teacher Education and the American Association of Colleges for Teacher Education in April 1969. The Phase I project directors or their representatives gathered in Washington for a two-day conference. On the first day each director wrote a guide to his model. A second day was devoted to verbal interaction, the writers discussing their personal reactions to all of the models and the past, present, and future implications for teacher education. Available from: AACTE, One Dupont Circle, Washington, D.C. 20036 for $4.00. (EDRS No. ED 034 076)

ANALYSES OF PHASE I REPORTS

- "Analytic Summaries of Specifications for Model Teacher Education Programs," a 200-page digest of the Phase I reports, consisting of an overall analysis of the models and a description and analysis of the common and divergent elements in each of the models. Available from: GPO (No. FS 5.258:58037)

- "Systems Analysis and Learning Systems in the Development of Elementary Teacher Education Models," a 50-page technical report. Available from: GPO (No. FS 5.258:58035)

- "A Short Summary of Ten Model Teacher Education Programs," a 30-page general summary in nontechnical language. Available from: GPO (No. FS 5.258:58036)

- "The Standford Evaluation of Nine Elementary Teacher Training Models," by Fannie R. Shaftel, Stanford University. This evaluation was conducted by a team of experienced educators doing graduate work in Stanford's School of Education.

- "NCATE's New Standards and USOE's Teacher Education Models," by Walt LeBaron, System Development Corporation. This paper reviews the Phase I models on the basis of *RECOMMENDED STANDARDS FOR TEACHER EDUCATION*, proposed and published by the American Association of Colleges for Teacher Education in November 1969 and approved by the National Council for Accreditation of Teacher Education in January 1970.

PHASE II FINAL REPORTS

INSTITUTION & DIRECTOR(S)	TITLE*
University of Toledo George E. Dickson	*THE FEASIBILITY OF EDUCATIONAL SPECIFICATIONS FOR THE OHIO COMPREHENSIVE ELEMENTARY TEACHER EDUCATION*
University of Massachusetts James M. Cooper	*A FEASIBILITY STUDY ON THE MODEL ELEMENTARY TEACHER EDUCATION PROGRAM*
University of Wisconsin M. Vere DeVault	*FEASIBILITY STUDY: PROGRAM AND SUPPORT SYSTEMS*
Syracuse University Wilford A. Weber	*A STUDY OF THE FEASIBILITY OF THE REFINED SYRACUSE UNIVERSITY SPECIFICATIONS FOR A COMPREHENSIVE UNDERGRADUATE AND IN-SERVICE TEACHER EDUCATION PROGRAM FOR ELEMENTARY TEACHERS*
Michigan State University W. Robert Houston	*FEASIBILITY STUDY: BEHAVIORAL SCIENCE TEACHER EDUCATION PROGRAM*
University of Georgia Charles E. Johnson Gilbert F. Shearron	*THE FEASIBILITY OF THE GEORGIA EDUCATIONAL MODEL FOR TEACHER PREPARATION - ELEMENTARY*
Florida State University Norman R. Dodl	*A FEASIBILITY STUDY OF THE FLORIDA STATE UNIVERSITY MODEL FOR THE PREPARATION OF ELEMENTARY SCHOOL TEACHERS*
Oregon College of Education H. Del Schalock	*A PLAN FOR MANAGING THE DEVELOPMENT, IMPLEMENTATION, AND OPERATION OF A MODEL ELEMENTARY TEACHER EDUCATION PROGRAM*

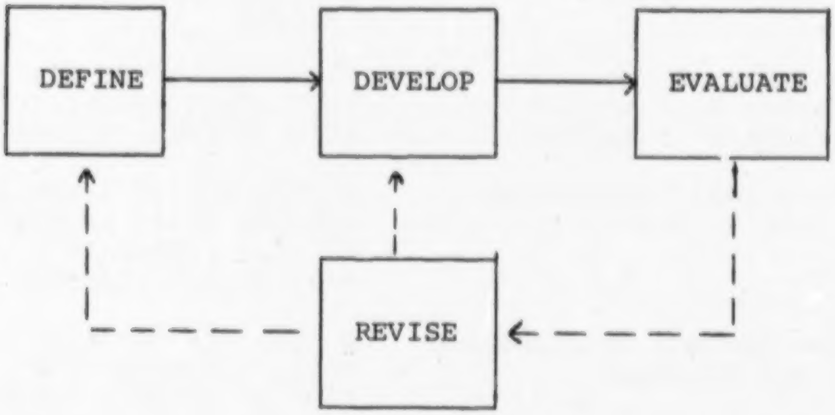
*Available from: Superintendent of Documents
U. S. Government Printing Office
Washington, D.C. 20402

PLANNING FOR CHANGE

In the previous two sections, the emphasis has been on the *design* of instruction. This section focuses on *planning* for the various activities required to design and develop a new instructional program. This involves identifying problems, organizing management tasks and responsibilities, and planning for evaluation.

SYSTEMS DESIGN

Using systems design principles and methods aids developers to anticipate decisions and actions. A simple illustration of the systems approach includes four stages: define, develop, evaluate, and revise.



These four stages are described by Twelker, Urbach, and Buck[17] as a nine-step model which provides a reasonable linear flow and indicates particularly critical check points in the process of developing instructional systems. These nine functions are outlined in Figure 13, and described in greater detail in the following paragraphs.

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[17] Paul A. Twelker, Floyd D. Urbach and James E. Buck, *THE SYSTEMATIC DEVELOPMENT OF INSTRUCTION: AN OVERVIEW AND BASIC GUIDE TO THE LITERATURE* (Stanford, Calif.: ERIC Clearinghouse on Media and Technology, Stanford Univ., 1972).

FUNCTION 1: IDENTIFY PROBLEM. Problems may be identified in many ways; but no matter what the technique, an essential task is to find a way, or several ways, to compare that which exists with that which is desired. If a large gap exists between actual and desired outcomes, the designer may be able to identify or clarify specific aspects of the educational problem. If, on the other hand, the gap is small, the identified problem may not require immediate attention. When the problems have been identified, tentative solutions are proposed to provide some perspective for other stages.

FUNCTION 2: ANALYZE SETTING. Identifying the problem and proposing tentative solutions help the team define the kinds of information to be collected. A basic phase of this process analyzes the setting to determine characteristics of learners and environment, and the existence of school and community resources which may relate to the problem solution. This report on existing conditions and resources assists the designer to test the adequacy of problem identification and to organize the management required to sustain the effort.

FUNCTION 3: ORGANIZE MANAGEMENT. Crucial areas that must be considered here are: 1) defining tasks and

FIGURE 13

INSTRUCTIONAL DEVELOPMENT SYSTEM

STAGE I: DEFINE

Function 1	Function 2	Function 3
IDENTIFY PROBLEM Assess needs Establish priorities State problem	ANALYZE SETTING Audience Conditions Relevant resources	ORGANIZE MANAGEMENT Tasks Responsibilities Time lines

STAGE II: DEVELOP

Function 4	Function 5	Function 6
IDENTIFY OBJECTIVES Terminal Enabling	SPECIFY METHODS Learning Instruction Media	CONSTRUCT PROTOTYPE Instructional materials Evaluation materials

STAGE III: EVALUATE

Function 7	Function 8	Function 9
TEST PROTOTYPE Conduct tryouts Collect evaluation data	ANALYZE RESULTS Objectives Methods Evaluation techniques	IMPLEMENT/RECYCLE Review Decide Act

responsibilities required in the effort; 2) establishing lines of communication to organize the collection and distribution of information to the development team; and 3) establishing project planning and control procedures. Without formal organization, developmental efforts usually fail.

FUNCTION 4: IDENTIFY OBJECTIVES. The crucial step in the process is identifying objectives which detail precisely terminal student performance. Once these objectives are specified, the developmental team can determine objectives that bridge the gap between the behaviors of a learner entering the system and those he exhibits when he leaves the system.

FUNCTION 5: SPECIFY METHODS. Specifying effective instructional strategies and media is essential to maximize the probability that learners will attain the desired objectives. While the development team cannot be assured of success the first time, they can employ systemic processes which emphasize the developmental cycle -- trials and revisions -- to perfect the methods and materials used. Alternative methods often are outlined in case the preferred strategy cannot be implemented.

FUNCTION 6: CONSTRUCT PROTOTYPE. Actual fabrication of the prototype to test the first draft of the program developing an evaluation design, initiating a technical review of the proposed system by experts to detect any flaws, and contructing performance measures to assess postinstruction behaviors are all included in this stage of development.

FUNCTION 7: TEST PROTOTYPE. Testing instructional prototypes generally occurs at one of three general levels: 1) development tryout -- looking for major flaws -- revision run throughs; 2) validation tryouts -- to see how well students achieve objectives; and 3) field tryouts -- to determine whether other teachers and students can use the materials.

Frequently, parts of the instructional prototype progresses through many tryout and revision cycles. Field trials use materials which the developer hopes are nearly in final form.

FUNCTION 8: ANALYZE RESULTS. Two activities are involved here. First, evaluation data are tabulated and processed. Second, relationships are analyzed between the methods used, results obtained, and the objectives and goals desired. The quality and comprehensiveness of data interpretation determine the potential boundaries for the quality of revisions.

FUNCTION 9: IMPLEMENT/RECYCLE. From the interpretation of the data obtained during trials, revisions may be indicated, ranging from minor to quite crucial. Toward the end of the development effort, a decision is made to stop recycling and to initiate implementation. In a monograph prepared for the ERIC Clearinghouse on Media and Technology,[18] these nine functions in a systems approach are analyzed and compared with five other systems designs. These other designs, identified in the following chart, provide additional stimulus for those planning a CBTE program.

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[18] Ibid.

	Model	Author
a.	Teaching Research System	Dale G. Hamreus
b.	Michigan State University Instructional Systems Development Model	John Barson
c.	Systems Approach for Education (SAFE)	Francis Corrigan
d.	Project MINERVA Instructional Systems Design	W. R. Tracey
e.	Banathy Instructional Development System	Bela H. Banathy

MANAGEMENT TOOLS

Two management tools are especially helpful when organizing and managing program development -- Program Evaluation and Review Technique (PERT) charts and Task and Responsibility Charts.

PERT charts relate the nature, sequence, and interdependence of tasks to be accomplished in the project. Time estimates for completing each task provide a realistic idea of personnel specifications, and suggest areas where additional resources may be required to keep the total project on time. Two pamphlets provide information on this technique.

Desmond L. Cook, *PROGRAM EVALUATION AND REVIEW TECHNIQUE: APPLICATION IN EDUCATION* (Washington, D.C.: U.S. Government Printing Office, Catalog No. FS 5.212:12024, 1966).

Federal Electric Corporation, *A PROGRAMMED INTRODUCTION TO PERT* (New York: John Wiley & Sons, 1967).

A PERT for the initial stages of project development is illustrated in Figure 14.[19]

The second management tool is a listing of tasks to be performed and the staff responsible for them. This can grow out of the PERT, but it focuses on *who* is to accomplish *what*, and *when*. This analysis also identifies staff who may be overloaded at peak periods, and aids in distributing responsibilities. An illustrative chart is shown in Figure 15.

The function of management is to assess priorities and resources and to organize the developmental effort to achieve program goals. Not everything can be accomplished. Human, fiscal, and physical resources are all limited; using management tools such as PERT and Task Charts help to clarify where potential problem areas are and to provide some data for decision makers. Other management techniques, human engineering skills, and conceptual management modes are described in the following resources.

RESOURCES ON SYSTEMIC PLANNING

Resources listed in this section are useful to program planners as they shape the management process, and as the

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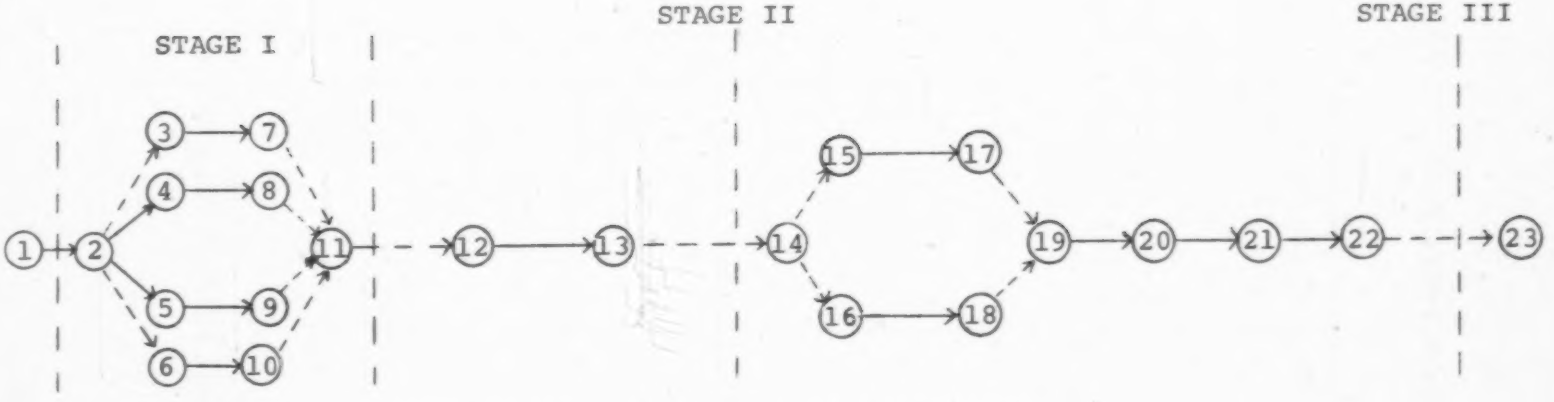
[19] C. E. Johnson and G. F. Shearron, *SPECIFYING ASSUMPTIONS, GOALS AND OBJECTIVES FOR TEACHER EDUCATION* (Athens: Georgia Educational Models, University of Georgia, 1971), p. 17.

FIGURE 14

ILLUSTRATIVE PERT CHART



List of Stages, Events and Activities
for Designing a Preliminary Plan

Stage I Self-Orientation (2-11)

- 3-7 Study present program.
- 4-8 Study nature of assumptions, goals and objectives
- 5-9 Make preliminary search for statements of goals, objectives, assumptions, etc.
- 6-10 Search for and examine strategies for development of statement of assumptions, goals, and objectives

Stage II Synthesize Ideas (12-13)

- 12-13 Bring together information from Stage I and formulate a tentative notion of the kind of plan that is needed for the target project

Stage III Preparation of Plan (14-22)

- 15-17 Identify resources
- 16-18 Prepare tentative PERT chart
- 19-20 Submit tentative plan to others for helpful input
- 21-22 Prepare tentative proposed plan and reproduce for distribution

FIGURE 15

PARTIAL LISTING OF TASK AND RESPONSIBILITY CHART

RESPONSIBILITIES	TIME FRAME	STAFF				
		A	B	C	D	etc.
Organize staff awareness and in-service programs	4/1-4/15	M	I	S	S	
Organize staff for developmental task	4/1-4/20	I	M	I		
Identify characteristics of program	5/1-7/1	I		S	M	
Conceptualize model design	5/1-7/1	I		S	M	
Identify process for determining specific objectives	5/1-6/1		M	S	M	
Recommend a module format	5/10-6/1	M	I	I	I	
Design prototype modules	6/1-7/1	M		S	S	
Outline procedure for student selection	5/1-6/1		M			
Implement procedure for student selection	6/1-9/1	I	M			
Recommend procedures and criteria for assessing program				I	I	

LEGEND: M = Initiating and major responsibility
S = Shared responsibility
I = Involved

management process shapes the development of CBTE programs.

Bela H. Banathy, *INSTRUCTIONAL SYSTEMS*, (Palo Alto, California: Fearon, 1968).

Describes simplified process for systematic instructional development.

John Barson, *INSTRUCTIONAL SYSTEMS DEVELOPMENT: A DEMONSTRATION AND EVALUATION PROJECT*, USOE, Title III B Project OE-3-16-025, (East Lansing, Michigan State University, 1967).

Describes systemic model for developing college level courses.

Leslie J. Briggs, *HANDBOOK OF PROCEDURES FOR THE DESIGN OF INSTRUCTION* (Pittsburgh: American Institutes for Research, 135 N. Bellefield Ave., 1970).

Included in this text for a course in design are a number of useful procedures and ideas.

James M. Cooper, W. A. Weber, and C. E. Johnson (eds), *DESIGNING A COMPETENCY-BASED TEACHER EDUCATION PROGRAM: A SYSTEMS APPROACH* (Berkeley, Calif.: McCutchen Publishing Co., 1973).

Written by several of the elementary models directors, this book explicates systems design principles for planning CBTE programs.

Sidney J. Drumheller, *HANDBOOK OF CURRICULUM DESIGN FOR INDIVIDUALIZED INSTRUCTION: A SYSTEMS APPROACH* (Englewood Cliffs, N. J.: Educational Technology Publications, 1971).

Illustrations of the framework and outcomes of one approach to individualizing instruction.

W. James Popham and Eva L. Baker, *SYSTEMATIC INSTRUCTION* (Englewood Cliffs, N. J.: Prentice-Hall, 1970).

Clear and succinct description appropriate for school teachers or university designers.

Robert G. Smith, *AN ANNOTATED BIBLIOGRAPHY ON THE DESIGN OF INSTRUCTIONAL SYSTEMS* (Alexandria, Virginia: Human Resources Research Office, George Washington University; available from National Technical Information Source, Springfield, Virginia 22151, $3.00 as document AD 653-128, May 1967).

Includes 449 annotated items dating from 1950-1965 which are divided in seven areas: systems -- general; training systems; presentation of knowledge, practice of performance, management of students, and additional material.

George H. Voegel (ed.), "Instructional Development: An Emerging Process," *AUDIO-VISUAL INSTRUCTION*, Vol. 16, No. 10 (December 1971).

The entire issue is devoted to instructional development, including rationales, models, and structures of several models.

Timothy W. Weaver, "The Delphi Forecasting Methods," *PHI DELTA KAPPAN*, Vol. 52, No. 5 (January 1971), pp. 267-271.

A procedure for achieving consensus without bringing individuals together is explained and explored.

Chapter 3

INITIAL DEVELOPMENT

SEQUENCING OBJECTIVES

This chapter details the processes for translating objectives into instructional programs. In CBTE the major vehicle for instruction is the module. While some might narrowly define modules as specific delivery mechanisms, we prefer to consider them more broadly so that group activities, research studies, human relations training, and explorations all can be encompassed.

Three prerequisites are assumed prior to the development of instructional modules.

1. The rationale and basic assumptions for the program are stipulated;
2. The conceptualization of the product has been completed; that is, the basic and optional competencies

to be demonstrated by graduates are identified; and

3. Specific objectives for graduates of the program are delineated.

All too often we begin to design program materials without a relevant context. Many initiate module specifications and materials development with no explicitly stated philosophy for the program, no conceptualization of the roles the graduates will assume, and sometimes no stated objectives. With the need for a "quick return," this short-cut often seems necessary since overall design of a program is time-consuming, often frustrating, and causes a teacher preparation staff to confront themselves with their philosophical differences. Faced with seemingly insurmountable barriers to progress, the program designer often turns to piecemeal development, hoping the pieces will eventually fit together. Each piece stands alone, isolated, often excellent in its own right but contributing little to an integrated preparation program. While admittedly difficult, total program design is a necessary prerequisite to the development of modules as described in this chapter.

In Chapter 2, attention was focused on the development of a logical, complete, and integrated series of teacher competencies or program objectives. These logically derived objectives usually must be rearranged to a psychological sequence based on student readiness and development. One basis for such an ordering employs the structure of the content as guide, progressing from simple notions to complex principles. The monumental work of Robert Gagne serves as a guide to analyzing objectives and ordering them using this procedure.

A second guideline in ordering and clustering objectives occurs as the program designer considers the location and facilities required for various activities. Some activities relate to cognitive input and may be completed on the college campus through mediated instruction, lectures, or seminars. Others require simulations or microteaching and can occur either at the college or in the schools. Yet other experiences require school participation -- introduction to schools through exploratory activities, tutorial activities involving children and youth, student teaching and internship. Availability of school settings and cooperative arrangements determines in large measure where, in what order, and with what intensity school experiences are to occur.

The psychological needs of the prospective teacher suggest the third consideration in sequencing and clustering objectives. The research of Fuller and others[1] supports this position. She hypothesized that beginning teacher education students are concerned initially with themselves as persons. Only after resolving conflicts resulting from such concerns do they focus on their impact on pupils and pupil needs. This sequence of teacher concerns suggests one set of considerations in program design.

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[1] Frances F. Fuller, *CONCERNS OF TEACHER: FIVE VALIDITY STUDIES* (Austin: Research and Development Center for Teacher Education, The University of Texas, 1970).

Organizing the delivery system and clustering related objectives may be accomplished while considering any or all of the above mentioned procedures. This initial ordering process will likely change as module specifications are written and materials secured or developed. But having explicitly stated and organized module clusters, no matter how unrefined, will contribute immeasurably to program continuity and writing modules. Otherwise, each module writer is forced to assume no previous background for the student; prerequisites become nonexistent, and every module is written at a first level of sophistication. Little or no pyramiding of concepts or objectives is practical, thus student development is impaired.

INSTRUCTIONAL MODULES

Designing modules to actualize instructional procedures becomes the next stage of program development. In the following paragraphs, modules will be described, a process for designing them will be discussed, and resources identified.

The Instructional Module is increasingly being employed to actualize competency-based programs. It is a set of experiences intended to facilitate the learner's demonstration of objectives which were specified in the design phase of development. While modules may be described in several different formats, they typically include five major sections.[2]

Prospectus includes a clear statement of the rationale for the module's objectives, outlines the major assumptions upon which the module is based, identifies the relationship of this module to the program as a whole, outlines the major activities and alternatives in the module, and stipulates prerequisites. After reading the Prospectus, a student should be able to decide whether or not to continue.

Objective or set of closely related objectives, each of which is stated in clear, unambiguous terms which stipulate what the learner is to demonstrate upon successful completion of the module.

Preassessment includes two dimensions. The first measures the extent to which the learner already has mastered prerequisites to the module, while the second tests his potential competence in meeting the objectives of the module itself. On the basis of results, the learner may undertake part, all, or none of the instructional alternatives. Preassessment may require demonstration of competencies by successful completion of written or oral tests, reaction to simulated episodes, or simply questions which elicit participant interest or needs. The module designer is not limited to one mode of assessment.

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[2] Paraphrased from W. Robert Houston, et al., *DEVELOPING INSTRUCTIONAL MODULES* (Houston: College of Education, University of Houston, 1972).

Enabling activities specify instructional alternatives for attaining module competence. Every module includes at least two means for achieving the objective. In addition to those identified by the module developers, learners may also identify alternate procedures for meeting objectives. A key assumption is that the emphasis is placed on achieving objectives, not on students participating in activities.

Postassessment like preassessment, is related to module objectives. Completion of a module is signalled by successful demonstration of competence on the postassessment.

The modular approach, as it complements CBTE, differs from traditional approaches in several profound ways. *First*, the total program is considered prior to specifying instructional parts. All too often in the past, each instructor developed his own course with little regard to how it fit with other learning experiences -- and often it did not; gaps and overlaps abounded.

Second, modules emphasize the *learner* rather than the *instructor*. Student needs, not instructor expertise or the availability of materials, determine what is to be studied. In the process, instructors often find some of their pet lectures to be less relevant than they previously had thought.

Third, modules focus first on *objectives*, not *activities*. Objectives are specified first, then activities are identified which appropriately facilitate achievement of objectives by learners. Instruction is focused on explicit objectives, thus eliminating extraneous aspects.

Fourth, modules are individualized and personalized. They are individualized in that they allow students to work at their own pace. They are personalized in that individual students may pursue varied goals and objectives. Traditional programs compare student achievements, while modular instruction compares students with predetermined objectives.

Fifth, modules include a variety of instructional modes. Activities may range from participating in small group human relations experiences to completing an experimental study or reacting to programmed instruction. Modules do not imply a specific delivery system. Technology is employed as a catalyst to more personalized and humanized education.

Sixth, a module is a *process* not just a product. It is constantly in flux, continually being redeveloped and refined. This process approach to curriculum design includes built-in procedures for testing the module's relevance in the crucible of experience, and altering it when feedback identifies a need for change.

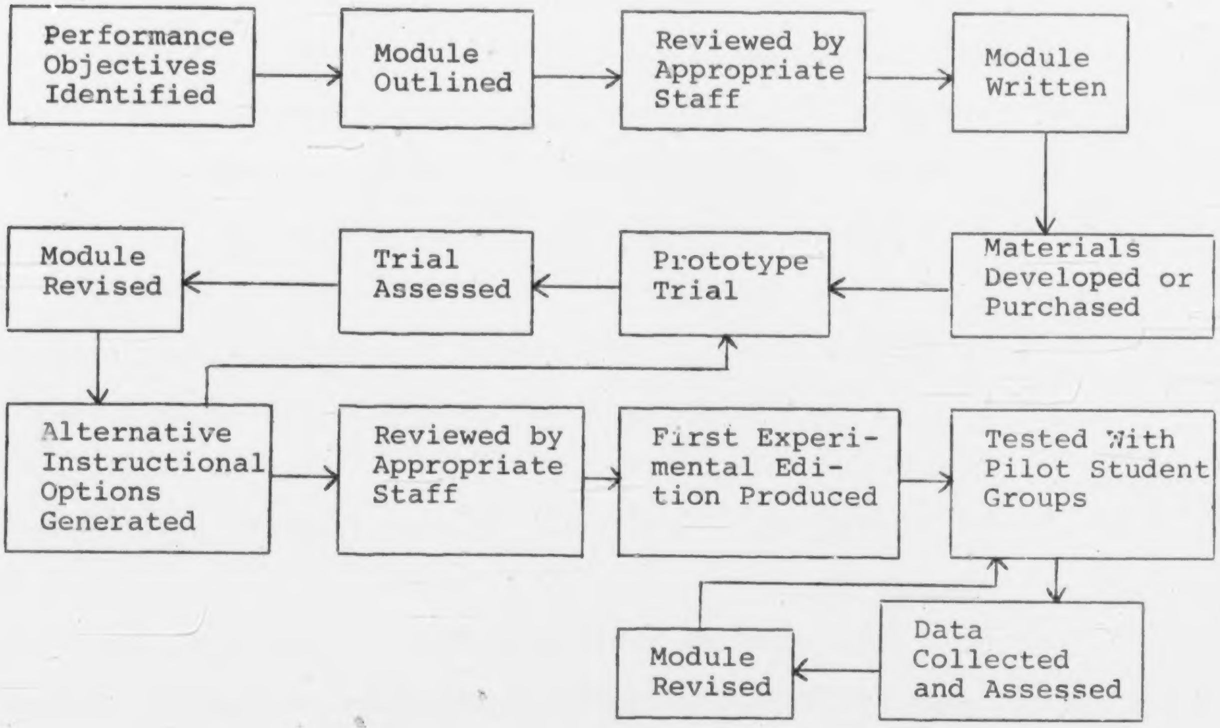
While each of these six characteristics may also describe other instructional modes, interaction of modular instruction in an active, changing process, focusing on learner and objectives makes this approach unique.

MODULE DESIGN PROCESS

Modules are never completely developed; by definition and nature the results of their use are evaluated and they are modified. This developmental sequence is diagrammed in Figure 16. The feedback loops insure quality and opportunity for redesign. One instrument for assessing modules so that they can be redefined is reproduced in Appendix B. Performance of students and their attitudes toward the module are important to an improved instructional program.

FIGURE 16

MODULE DESIGN FLOWCHART


Performance Objectives Identified
Module Outlined
Reviewed by Appropriate Staff
Module Written
Materials Developed or Purchased
Prototype Trial
Trial Assessed
Module Revised
Alternative Instructional Options Generated
Reviewed by Appropriate Staff
First Experimental Edition Produced
Tested With Pilot Student Groups
Data Collected and Assessed
Module Revised

DESIGN PROCEDURES

Designing module specifications and developing materials to support them requires increased faculty resources. After a total conceptualization of the prospective teacher's program has been completed, individuals or small groups can work on various phases simultaneously. Resulting modules can be very poor or extremely innovative, creative, and effective. When several persons work together in brainstorming sessions, the results are typically more productive. This is usually complemented with individual assignments to group members for writing tasks which are then critiqued and refined.

Just as students are more efficient when they know the objectives toward which they are working, module designers are more effective when they are task oriented. Some programs couple released time with specific outcomes or products. One program has employed the project method, with potential designers writing mini-proposals which stipulated the output of their effort if they were provided time or other resources. Others have found more efficient use of resources when module development was concentrated into a specific and relatively short time frame. One such training-writing effort is the workshop or conference.

MODULE WRITING WORKSHOP

Program designers sometimes initiate module writing through a two- or three-day workshop. Several advantages accrue when this is done. First, the developers all can be given explicit charges as to what the ultimate product of the workshop is to be. Second, a few consultants can work with a large number of people. Third, participants can benefit from interaction. Fourth, special materials and enabling activities can be assembled to help participants with the task at hand. Fifth, by gathering at a selected site, external distractions are reduced to a minimum. And finally, the cooperative, synergetic atmosphere generated at the workshop is conducive to creative thinking.

Three tasks, if accomplished by each participant prior to the workshop, contribute to its success.

a. Identify the competency which is to be developed into a module.

b. Restate the competency as specific learner-oriented criterion-referenced objectives.

c. Identify and bring with him any materials which he might use as resources in writing the module.

In the following sample program, a module development workshop agenda has been outlined.[3] See Figure 17.

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[3] The module development system, Houston, et al., *DEVELOPING INSTRUCTIONAL MODULES*, was employed to support this workshop.

FIGURE 17

SAMPLE MODULE DESIGN WORKSHOP

OPENING SESSION

Thursday, 7:00 - 9:30 P.M.

WORKSHOP OBJECTIVE:	Each participant will write a module for teacher education which meets minimum criteria.
INSTRUCTIONS:	Convene in the Sir Kay Room for the opening session. Following is an agenda, along with the objectives for the opening session.

SESSION OBJECTIVES:

Following the opening session you will be able to:

1. Define a module.
2. Self-prescribe what your activities will be for Friday's sessions.
3. Organize into small work groups for the remainder of the workshop.
4. State what resources are available in the workshop, locate the rooms where they are available, and identify the consultants who will assist during the workshop.
5. State precisely what you are expected to accomplish during the workshop.

ENABLING ACTIVITIES:

The following agenda was designed to help you achieve the objectives stated above.

1. Welcome to the workshop.
2. Purpose/terminal outcome of the workshop.
3. View slide-tape "Developing Instructional Modules: An Introduction to the Concept".
4. Examine module samples; ask questions.

FIGURE 17 (CONTINUED)

5. Review module format to be employed by participants.
6. Complete preassessment and self-prescription.
7. Identify work areas, resources, enabling activities, and consultants.
8. Organize into work groups; conclude opening session.

Friday Work Sessions

INSTRUCTIONS: Convene in the Sir Kay Room for the first session. The objectives for Friday's sessions follow:

SESSION OBJECTIVES:

During the Friday sessions you should accomplish the following:

1. Using the self-prescription which resulted from your preassessment Thursday evening, enter the Enabling Elements required to extend your knowledge of module development.
2. Begin the development (or continue the development) of your module.
3. Report back to the large group your progress to date.

ENABLING ACTIVITIES:

1. 8:30 - 8:45 Attend plenary session in Sir Kay Room.
2. 8:45 - 3:00 Work sessions: choose from the following activities:

Begin actual writing of your module.	or	Select from the following Enabling Elements to extend your competence in selected aspects of module writing. a. Writing Objectives b. Classifying Objectives c. Designing Flowcharts

FIGURE 17 (CONTINUED)

d. Developing Assessment Procedures
e. Specifying Enabling Activities
f. Outline Module Development Procedure
g. Participant Options

3. 3:00 - 5:00 Convene in the Sir Kay Room to report progress to and elicit suggestions from the total group.

4. 7:00 -- Continue working with your small group to develop your module.

Saturday Work Sessions

INSTRUCTIONS: Convene in the Sir Kay Room for a plenary session at 8:30 A.M.

ENABLING OBJECTIVES:

By the end of the day's sessions, you should accomplish the following:

1. Complete the module on which you have been working.
2. Describe the prototype test and refinement procedures for modules after the workshop ends.

ENABLING ACTIVITIES

1. 8:30 - 8:45 Plenary session in the Sir Kay Room.
2. 8:45 - 1:00 Work sessions: continue writing the module.
3. 1:00 -- Convene in large group in Sir Kay Room for report-back session on progress to date. Make final revisions and refinements of the module.

POSTASSESSMENT

Each participant will have designed the specifications for a module during the workshop. In the back of your work-

FIGURE 17 (CONTINUED)

text, *DEVELOPING INSTRUCTIONAL MODULES*, you will find a list of criteria to assess the effectiveness of your module. When you have completed writing the module, check it against these criteria, then submit it to the Conference Director and Evaluation Task Force. Their acceptance constitutes successful workshop completion.

A workshop similar to the one outlined above requires the following equipment and materials:

1. Overhead projector
2. Slide projector(s)
3. Cassette recorder(s)
4. Newsprint
5. Felt pens
6. Masking tape
7. Name tags

When the module writing team is working together over an extended period, the same process can be employed in orientation, but scheduled to accommodate other demands. The most difficult module to write is the first; the third or fourth ones are readily written.

RESOURCES IN MODULE DESIGN

The following sources are useful in aiding module designers to conceptualize the system.

Robert L. Arends, J. A. Masla, and W. A. Weber, *HANDBOOK FOR THE DEVELOPMENT OF INSTRUCTIONAL MODULES IN COMPETENCY-BASED TEACHER EDUCATION PROGRAM* (Buffalo, New York: Center for the Study of Teaching, State University College at Buffalo, 1971).

A booklet, pictograms, and videotapes which describe procedures for writing modules.

W. Robert Houston, L. Y. Hollis, H. L. Jones, A. Pace, S. White, and D. Edwards, *DEVELOPING INSTRUCTIONAL MODULES* (Houston: College of Education, University of Houston, 1972).

The module development system includes a worktext, 4 slide-tape presentations, an audio-tape, and a Director's Guide. Enabling Elements included are: Write Criterion-Referenced Objectives, Classify Educational Objectives, Design Flowcharts, Specify Enabling Activities, Develop Assessment Procedures, Specify Module Development Process, and Outline Module Format.

Stuart and Rita Johnson, *DEVELOPING INDIVIDUALIZED INSTRUCTIONAL MATERIAL: A SELF-INSTRUCTION MATERIAL IN ITS SELF* (Palo Alto, California: Westinghouse Learning Press, 2680 Hanover St.,).

Chapters on specifying and analyzing objectives, measuring and obtaining objectives, arranging instructional activities, and selecting and designing methods and materials.

Philip G. Kapler and Glen F. Ovard, *PREPARING AND USING INDIVIDUALIZED LEARNING PACKAGES FOR UNGRADED, CONTINUOUS PROGRESS EDUCATION.* (Englewood Cliffs, New Jersey: Educational Technology Publications, 1971).

Describes a procedure for developing Individualized Learning Packages for elementary and secondary schools, but includes valuable insights for those writing modules for training teachers.

MODULE SOURCES

Hugh Baird, et al., *A BEHAVIORAL APPROACH TO TEACHING* (Dubuque, Iowa: William C. Brown, 1970).

Bruce Joyce, et al., *MATERIALS FOR MODULES* (New York: Bruce Joyce, Teachers College, Columbia University, 1971).

Describes and classifies a number of modular resources.

W. C. Meierhenry, (ed.) *MEDIATED TEACHER EDUCATION RESOURCES* (Washington, D.C.: American Association of Colleges for Teacher Education, 1970).

This bibliography of mediated resources, including films, filmstrips, and videotapes, provides a valuable resource for educators developing CBTE programs.

National Teacher Corps (Washington, D.C.: Teacher Corps, U.S.O.E.)

An instructional materials center includes a wide range of resources in teacher education. See James P. Steffenson or Bambi Olmsted. Also, Teacher Corps Projects employ modules as part of their developmental efforts, with a number of excellent ones resulting.

Panhandle Area Educational Cooperative, *B-2 Modules* (P.O. Drawer 190, Chipley, Florida).

A series of modules, written by Florida educators are available at nominal cost, along with supporting audio-visual materials.

Weber State College (Ogden, Utah: College of Education)

About 50 WILKITS have been designed and are commercially available through the college.

Wilford Weber, *MODULE EXCHANGE BANK*, funded by Teacher Corps, has been designed to distribute module descriptions to those projects contributing modules to the Bank.

Chapter 4

PROTOTYPE TEST

Institutions implementing CBTE typically may be placed in one of three categories: (a) they test CBTE using a small group of students with no conception of how the program might be expanded to the total preparation program or they plan to implement CBTE as a parallel program; (b) they test CBTE with a pilot group of students to improve materials and procedures while the remainder of the college continues on the "old" program, then expand gradually until everyone is pursuing the revised program; of (c) they initiate CBTE by changing the total program in one move.

The first strategy often is employed by faculties who have no desire to change their program or practices, but feel compelled by social or professional pressure to be "relevant."

These colleges are replete with several small trial programs, none of which will be expanded regardless of how effective they may be. The rationale for multiple programs may be that their college is a research institution and must test alternate routes to certification (although parallel data collection procedures among programs are rarely accomplished). In other cases individual professors design partial programs in specific curriculum areas (i.e., science, educational psychology, student teaching), but these are seldom related to the student's total experience. Thus, limited development may occur with a small group of students pursuing their total program through CBTE or a larger number engaged in a limited portion which is competency-based. But the majority of the faculty are not involved, nor do they contribute to the development of such a program.

In the second approach, the college commits additional resources to those faculty who design and test CBTE with a portion of the student body to refine competency listings, modules, and procedures. Some of the bugs can be worked out of the system prior to broader implementation. Other faculty members may be involved through awareness conferences, committees to determine policies and procedures, identification of teacher competencies, and organization of resources when the program is fully implemented. This model is the most efficient of time and institutional resources, and if the intensive pilot efforts are articulated with contributions from the total staff, it leads to a workable CBTE program.

Several colleges have effectively committed their total resources to CBTE with little or no pilot efforts. While many have been successful in this procedure (Weber State College and Florida International, for example), others have had to "pull in their horns" when administrative arrangements, organizational structure, or simply materials allocation bogged down in the press of too many students using untried materials with an untested procedure.

While it may be employed in any of the three approaches previously described, prototype testing most often is part of a designed systemic program development using the second procedure. It becomes a testing ground for the first cycle of the design/test/refine process. *Most programs adapt not adopt from other's experience.* The prototype test permits them to try out modules and to assess (1) the extent to which module descriptions communicate to students, (2) whether the rationale makes sense to them, (3) the time required to complete modules, and (4) the availability of resources.

The procedures for the program can also be tested during the prototype trials. How are module materials to be checked out and used by students? To what extent is staff-student interaction time involved? Are resources readily available, what problems are encountered in scheduling facilities, registering students, assigning grades, etc. In Chapter 5, several of these administrative issues will be explored in greater depth, but many can be improved through trials during prototype tests.

The major contribution of prototype tests is the evaluation of program objectives, elements, and resources with a limited population, prior to such extensive implementation that availability of materials and the mire of procedures stagger the program before it can begin. Because of its central concept in prototype testing, evaluation is explored in greater detail in this chapter. Just as prototype testing involves more than evaluation, evaluation extends throughout the total program, not just this phase.

ASSESSMENT AND EVALUATION

In designing and testing a performance-based teacher education program, evaluation serves three purposes: improve program effectiveness, improve program organization and management, and monitor student performance.[1] Evaluation is not something which occurs at the end of the project but is integral to continued development. Just as in the calculus in mathematics, evaluation improves programs, management, and students through successive program refinements and approximations of goals sought. The systemic approach requires a continual process of development, testing, and refining. The first approximation of a desirable teacher education program may be based on previous experience or a conceptual model; evaluation alters that design by making it more precise, refined, definitive, and valid for stated objectives.

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[1] Many of these ideas were clarified through conversations with David Potter, Educational Testing Service.

2

Measurement is an integral part of evaluation; however evaluation adds the qualitative dimension, the contextual edge to the process. One might measure the width of a door, but evaluate the adequacy of that width for its location, traffic flow, and use. In teacher education, one can measure the performance of a teacher using observation scales, rating devices, or other measurement tools. Evaluation compares those measurements with objectives which imply societal criteria, change in pupil behavior, and hunches by evaluators concerning adequate teaching styles.

In a complex endeavor such as measuring and evaluating human behavior, the temptation is to consider factors which are readily quantified and easily accessible. Just as the foolish man searched for a lost ring under the streetlight rather than in the dark alley where he dropped it, we too often employ evaluation processes which have little potential for success, but provide activity which supposedly demonstrates progress. The important dimensions are usually not the easiest to evaluate.

IMPROVING PROGRAM EFFECTIVENESS

Increasing program effectiveness implies refining (1) objectives, and (2) the instructional procedures which facilitate student achievement of those objectives. Both assessment and evaluation questions for each of these are treated in the following paragraphs.

Program objectives or competencies, when explicitly stated and used to organize the curriculum, distinguish a competency-based program. Activities are designed so students can achieve these objectives and evaluation procedures related directly to them. Objectives can be *assessed* in terms of:

1. The technical adequacy of their construction (behavioral statement, criteria, conditions);
2. whether objectives are student oriented; and
3. the clarity with which they convey to the reader their intent.

For each of these areas checklists can ascertain the adequacy of the statement. This assessment, however, does not indicate the *quality of the expected performance* nor the *adequacy of the objective in improving teacher effectiveness*. For these, *evaluation* is employed since values permeate the process. Evaluation of objectives considers questions such as:

1. Would the total set of program objectives logically lead to a teacher model as described in the theoretical description?
2. Does each objective contribute to the overall model?
3. Is each objective consistent with democratic principles?
4. Is each objective worthy of achievement given the goal of educating a teacher and the time and resource constraints likely to apply?

5. Do program objectives cumulatively meet minimum legal requirements; i.e., certification?
6. Do graduates of the program act differently in predictable ways from other teachers?
7. Is the teacher more effective who can demonstrate a specified competency than one who cannot?

Instructional resources and procedures are actualized to facilitate the achievement of program objectives by students. Modules, activities, and programmatic sequences can be *assessed* in terms of the length of time required by students to complete them, clarity of description of content and processes, and description of procedures students follow in the program. For a model of a module assessment instrument, see Appendix B.

Some aspects of teacher performances which can be assessed include knowledge of:

1. Content being taught and of teaching processes;
2. communication patterns in the classroom;
3. teacher products such as lesson plans, analyses of student interest, achievement, or program thrusts; and
4. results of teacher actions, such as change in pupil behavior or achievement, pupil products, or professional non-pupil activities (professional association accomplishments, curriculum committee reports and recommendations, change in attitude or knowledge by other teachers, administrators, parents, or non-professional persons).

Some of these are assessed using a *nominal* scale in which change is described without reference to a particular scale direction. These are typically descriptive, identifying by name a particular phenomenon or action. The Flanders Interaction Scale, for example, is a relatively precise nominal scale in which the observer classifies verbal communication every three seconds in one of ten categories. No implied linear order exists among the various categories.

Other scales are *ordinal* in nature; the units of measure are ordered either quantitatively or qualitatively. Each successive unit is assumed to be greater than the preceding one, although the extent of that difference is not necessarily uniform between adjacent units. When uniform differences between successive measures on the scale are added, the measuring instrument becomes an *interval* scale. Even more precision is required of *ratio* scales where fractional relations are included. Few if any teacher competency scales attain this level of precision. An example of a ratio scale would be one which measured the ratio between the amount of teacher talk in a classroom to student talk. The range would be from -1 through 0 to +1 with positive values representing successively greater student talk.

Each of the two illustrations above, Flanders Interaction Scale and ratio of teacher-student talk, is an assessment of teacher performance. Evaluation of these adds the concept of *value*. Does any combination of Flanders categories produce more effective instruction? His research, and that of a host of interaction researchers, indicates that they do. The comparison of observed and recorded phenomena against some effectiveness measure is one form of evaluation. So it is with the teacher-student talk ratio. If some set of ratios is perceived either intuitively, empirically, or theoretically to be more effective than others, then the process becomes evaluation. The criteria of worth, however, should be more explicit when evaluating performance.

Evaluation of activities, modules, or processes includes areas such as those listed below.

1. Does this instructional procedure facilitate student achievement of stipulated objectives?
2. Is the total set of instructional procedures both necessary and sufficient for the student to achieve stipulated objectives?
3. Are alternative activities equally relevant to objective attainment?
4. Do alternative activities appeal to a range of student learning styles?
5. Are instructional activities efficient in terms of student time, resource allocation, staff time, sequencing, and locations where they are to be completed?
6. Are all instructional activities and procedures consistent with the theoretical model advocated in the teacher education program?

7. When considering available and required resources (staff, physical facilities, and materials), is each activity worth engaging in?

IMPROVING PROGRAM ORGANIZATION AND MANAGEMENT

In addition to evaluating objectives and instructional alternatives to achieve them, the program designer evaluates the procedures and processes employed in program development. In *assessing* developmental efforts, one can measure the:

1. Time required to develop various program aspects;
2. Cost of materials to implement that program;
3. Number of staff required for certain functions;
4. Space requirements for implementation; and
5. Many other factors which become evident when the procedures are PERTed out and responsibility charts delineated.

Evaluation of these measurements considers the importance of each in relation to its contribution to the developmental effort. Some may require extensive resources but be crucial in the enterprise; others may be less demanding but their priority low when developmental goals are considered. Note that while in previous sections we have evaluated in terms of program objectives, in this phase of evaluation we evaluate in terms of efficiency and adequacy of procedures for developing that program. Some program development procedures to be *evaluated* include:

1. Do management procedures facilitate curriculum development?
2. Are limited staff resources being deployed in critical areas?
3. Are financial resources being allocated efficiently to needed areas?
4. Do the dynamics of the staff interrelationships contribute to program development and design?

Evaluation is particularly crucial in the systemic approach to program development. It provides the data base for management decisions which leads to more effective generation of the CBTE program. It is the *sine qua non* of management.

IMPROVING STUDENT PERFORMANCE

The focus of the previous two sections has been upon programatic developments, while this section considers questions and procedures by which student achievement is compared with program expectations. Many of the questions raised relative to program improvement can be redirected to the learner; rather than repeating them herein, we will suggest supplemental questions which are appropriate to individual learners.

Fred McDonald has identified four aspects of teacher assessment: 1) aptitudes and attitudes, 2) technical skills, 3) decision-making ability, and 4) capacity for professional growth.

The first, aptitudes and attitudes, is evaluated early in a prospective teacher's program. The individual's aptitude for learning what he will be teaching (content) and teaching skills could actually become part of the decision-making process in selecting prospective teachers. Testing aptitude for teaching skills, for example, might be accomplished by having the candidate teach the same lesson four times, with some lessons followed by personal assessment and others critiqued by an observer. The evaluator would seek answers to questions such as these: How does the person respond to critiquing? How realistic is his evaluation of his own performance? Did his instruction improve with successive trials? In what ways did he modify instruction following critiquing? Decisions based on these assessments are typically tempered by the amount and quality of information available, consequences of the decision, and reversibility of the decision.

The second aspect, measuring teaching skills, taps the most elemental teaching skills. Ability to establish instructional set for a lesson, implement basic plans, obtain closure, and communicate with children using questioning techniques are suggestive of the technical skills which can be assessed.

A third area of prospective teacher evaluation taps the integration of the various technical skills and their application with a specific group of children. This might be accomplished through simulations where an individual is provided written data and asked to respond. This tests their ability to plan, to structure knowledge, and their general decision-making behavior. Visual stimuli in simulations provide a procedure for measuring perceptual behavior (when shown slides of classrooms, what inferences do they make, how do they react, to what extent are they able to read non-verbal cues?) With both written and visual simulations, the object is to test perception of the situation and reactions to it. Microteaching extends the individual's involvement and provides another procedure for testing decision-making skills and integration of teaching skills.

The fourth level assesses teacher competence over an extended period to note stability of performances, adaptability to changing conditions and the growth curve. In essence, this on-the-job assessment can distinguish professional teachers from craftsmen.

Relative to the *objectives and competencies* of a teacher preparation program, a student's progress may be evaluated on dimensions such as these:

1. When optional objectives are available, is he selecting those most relevant to him as a teacher and as a person?
2. Do the selected set of competencies logically lead to an integrated preparation program?
3. Does he set objectives for himself beyond those established in the program?

When *instructional procedures* are considered in relation to individual participants, questions such as these are relevant:

1. Is the range of instructional alternatives he has engaged in wide enough when considering his future

role as a teacher and the theoretical model of the preparation program?

2. Does he explore beyond program activities; if so, in what areas?

When questions are focused on *personal development*, aspects such as these are considered:

1. Is the individual progressing at an acceptable rate when considering personal characteristics, progress of other students, and extenuating circumstances?
2. What evidence indicates that he is committed to being a professional teacher?
3. Does this prospective teacher emphasize his positive personal attributes?
4. Does he employ previously demonstrated competencies when working on subsequent program elements?
5. What evidence indicates that he is progressing in his use of various competencies through implementation stages (from awareness to interest, appraisal, trial, adoption, and finally integration)?
6. What attitudes does he exhibit toward teaching as a profession and himself as a teacher?

Questions such as those posed above provide the student and his advisor with information which is useful in reformulating his program and providing a basis for comparing actual progress with some standard.

RESOURCES ON EVALUATION

David P. Baral, et al. *A TAXONOMY OF TEACHING BEHAVIORS: PROGRESS REPORT AND LISTING AND PRELIMINARY CLASSIFICATION OF THE ITEM POOL* (Stanford Report No. 36, Calif: Center for Research and Development in Teaching, 1968). (ERIC No. ED 049 157)

Dale L. Bolton, *TEACHER EVALUATION*, PREP Kit No. 21 (Bethesda, Maryland: ERIC Document Reproduction Service, 1971). (ERIC No. ED 044 546)

Packets in this folder summarized information on teacher evaluation, criteria development, teacher observation, measurement instruments, and assessment of the evaluation process.

B. S. Bloom, J. L. Hastings, and G. F. Madores, *HANDBOOK OF FORMATIVE AND SUMMATIVE EVALUATION OF STUDENT LEARNING* (New York: McGraw-Hill, 1971).

Excellent source of information; Part 1 discusses evaluation techniques and systems while Part 2 illustrates objectives and testing techniques.

Robert C. Burkhart (ed.), *THE ASSESSMENT REVOLUTION: NEW VIEWPOINTS FOR TEACHER EVALUATION* (Albany: New York State Education Department, Division of Teacher Certification, and Program Evaluation," 1969).

These proceedings of a New York Symposium on evaluation include speeches and discussions on teacher, certification, and program evaluation.

N. L. Gage (ed.), *HANDBOOK OF RESEARCH ON TEACHING* (Chicago: Rand, McNally, 1963).

Reference book on theoretical orientations, methodologies in research and evaluation, and illustrations from various grade levels and subjects.

Stephen P. Klein, "The Uses and Limitations of Standardized Tests in Meeting Demands of Accountability," *EVALUATION COMMENT*, Vol. 2, No. 4, January 1971).

Theoretical basis and practical suggestions for employing standardized tests.

Bernard H. McKenna, et al., *TEACHER EVALUATION: AN ANNOTATED BIBLIOGRAPHY* (Bethesda, Maryland, ERIC Document Reproduction Service, 1971). (ERIC No. SP 005 351)

An 86-item bibliography is annotated and analyzed.

Donald M. Medley, *SPECIFICATIONS FOR A NEW TEACHER EXAMINATION: A FIRST APPROXIMATION* (Princeton, N.J.: Educational Testing Service, 1970).

An assessment system is projected which considers various competencies and ways they might be tested.

W. James Popham, (ed.), *CRITERION-REFERENCED MEASUREMENT (AN INTRODUCTION)* (Englewood Cliffs, New Jersey: Educational Technology Publication).

Basic reference for study of measurement techniques and strategies.

W. James Popham, *EVALUATION* (filmstrip), (Los Angeles: VIMCET Assoc., P.O. Box 24714).

Useful for students or initial orientation to evaluation of instructional program.

Malcolm Provus, *DISCREPANCY EVALUATION* (Berkeley, Calif.: McCutchan, 1971).

Describes a discrepancy evaluation model for education, critiques of the model by eight educators, and applications of the model design for public school programs, statewide programs, and federal efforts.

H. C. Schulberg, A. Sheldon, and F. Baker, (eds.), *PROGRAM EVALUATION IN THE HEALTH FIELDS* (New York: Behavioral Publications, 1969).

Provides a varied perspective which suggests other procedures for evaluating teacher education programs.

D. L. Stufflebeam, et al., (ed.), *EDUCATIONAL EVALUATION AND DECISION-MAKING* (Bloomington, Ind.: *PHI DELTA KAPPA*, 1971).

Five problem areas are explored: definition, decision-making, values and criteria, administrative levels, and the research model. Provides operational guidelines for implementing the proposed new approach.

REVIEW OF EDUCATIONAL RESEARCH, Vol. 40, 1970.

Two articles are of particular importance in this issue on evaluation: B. Rosenshine, "Evaluation of Classroom Instruction," pp. 279-300; and I. Westbury, "Curriculum Evaluation," pp. 213-238.

Ralph W. Tyler, *EDUCATIONAL EVALUATION: NEW ROLES, NEW MEANS*, Sixty-eight Yearbook, Part II of the National Society for the Study of Education (Chicago: University of Chicago Press, 1969).

Discusses changes in evaluation over the years and suggests implications for educational practice.

M. C. Wittrock and David E. Wiley, *THE EVALUATION OF INSTRUCTION: ISSUES AND PROBLEMS* (New York: Holt, Rinehart and Winston, 1970).

Good text and reference for evaluating instructional procedures.

Chapter 5

OPERATIONAL PHASE

Extending the CBTE program from prototype testing to an operational status commits resources and staff to revised directions and new perspectives. During initial operation, two aspects of the developmental process become of paramount importance -- obtaining staff and institutional commitment and organizing resources for efficient use by students. Efforts in both areas will have been initiated previously, but because of their critical nature in initial operation, they are described in this section. During continued operation, maintaining program relevance becomes the critical factor. This chapter considers institutional and individual commitment, program organization, and strategies for maintaining program relevancy -- three crucial areas for program developers.

INITIAL OPERATION

ADOPTION OF EDUCATIONAL PROGRAM

Individuals reach the decision to adopt a new idea through several predictable stages. While the time may vary from person to person, the stages and their sequence are readily identifiable.

PHASE 1 - AWARENESS. Individual knows of the innovation but has only a passive interest. The method used in presenting the innovation to him may determine whether or not he will be motivated to progress to other stages.

PHASE 2 - INTEREST. He actively seeks information about the innovation, but he has not yet decided that the innovation is suitable for him.

PHASE 3 - APPRAISAL. The individual simulates in his mind the operation and effects of the innovation in his own situation, and decides if it is worth the effort to try it out.

PHASE 4 - TRIAL. He employs the innovation on a small scale to determine if it works as simulated.

PHASE 5 - ADOPTION. On the basis of trials, the person decides to adopt the innovation or not.

PHASE 6 - INTEGRATION. During this last stage of the adoption process, the use of the innovation becomes routine. In daily efforts, it is utilized and applied in creative ways.

For each phase of the diffusion strategy, different types of activities are appropriate. During the *awareness phase*, the planner poses the question, "What percentage of the teacher training staff is aware of CBTE?" Currently, in your own institution, probably most have heard about CBTE, but many may not have explored in depth because of other more pressing interests, misunderstandings, or simply lack of involvement. A strategy for involving them, and some basic resource materials for that process, have already been described in Chapter 2, *Planning and Designing*. Such involvement is based on the concept that behavior is most likely to be changed when:

1. Individuals sense a problem or feel a need for some change in themselves or their environment;
2. persons who are expected to change behavior are involved in determining where change is needed and the processes by which change can occur; and
3. major decisions about the elements of change are made by the persons expecting to implement and maintain the new behavior.

The second phase, *interest*, requires greater effort than simply being aware of the existence of CBTE. Activities described in Chapter 2 were designed not only to make people *aware*, but to stir their *interest* as well. When they attend the conference described in that chapter, they are already aware of CBTE, so the basic purpose of that session is to arouse interest.

The third stage, *appraisal*, provides for the individual to compare the theoretical bases of CBTE with the practical realities of his area of expertise, and to test them in a simulated situation. In effect, he analyzes CBTE to ascertain if it actually is worth adopting before he commits himself to actual trials with it. In this stage, the educational planner provides both substantive and emotional support. He aids potential adopters to examine implications in terms of professional status, job and role description, and time commitments.

The fourth phase is an actual *trial* using CBTE; this stage marks a significant milestone in this process. For the person trying out CBTE for the first time, this is a "risk-taking" situation even though the administrator or designer may consider it only as another step in the process of adoption. Thus, the designer will want to think of the trial from the adopter's vantage; listen to his words and needs, and take as much risk out of the situation as possible. Positive reinforcement at this stage is vital.

Adoption, the fifth phase, is initiated at the end of the trial period when a decision is made to adopt rather than reject the innovation. The adopter will be positively reinforced by attention from the designer, by his active interest in the adopter's successes and problems, by opportunities for the adopter to share with other CBTE programs, through recognition by professional groups, and other rewards such as salary increases, tenure status, rank, etc.

Integration will be smooth if the first five stages have been carefully attended to. Integration, however, does not imply a static situation where procedures, modules, and results are employed over and over again; indeed it is a dynamic process leading to further research, understanding, and a more effective teacher education program.

Resistance and rejection can develop at any time in the change process. Should this occur, consider recycling through earlier stages of the diffusion process. CBTE is not integrated into the program when the administration or the innovators have adopted it. Indeed, each of the six phases in the change process will continually function as new faculty are added and as late adopters consider CBTE. A continuing program of integration, therefore, is imperative to a developing CBTE program. Followup conferences, training sessions, reports on the successes and problems of adoption, analyses of the products of the program and processes used are helpful in providing continued support of CBTE ventures.

Several specific ideas may substantially increase the viability of the adoption process.

1. Individuals should be encouraged to progress through the six stages in sequence, avoiding these hazards:
    a. Skipping stages (e.g., Adoption without Appraisal);
    b. changing the order of stages (e.g., Trial before Appraisal);
    c. Scheduling adoption activities in such a way that people feel hurried or harried; and

   d. Ignoring individual differences in adoption rates.

2. Each individual should be permitted to make a personal commitment.
3. Each person is encouraged to discuss their doubts about CBTE.
4. Designers attempt to garner and offer resources relevant to each adoption phase.
5. Designers provide extra support at the time of trial. This is often the time of greatest resistence since the implications of the change become apparent, and fear of failure and loss of security become more threatening.

INSTITUTIONAL CHANGE PROCESS

Just as individuals progress through various stages in adopting an innovation, so do institutions. Is it possible for institutions to change? Obviously they can, for even those most stable and seemingly impervious to alteration have changed over time. Societal needs, economic demands, the "national conscience," technological advances, and world events are but some of the more global influences. Individual institutions are further affected by specific and unique agents of change.

Teacher preparation institutions have changed over time; however, the major shifts have been primarily evolutionary and reactive. With the acceleration of technological and societal change characterizing the current century, such an inactive stance can lead only toward widening the gap between educational programs and societal needs. The important question is not, "Can educational institutions change?" but "Will they change rapdily enough to meet the needs of a changing society?"

In many areas, improvement has resulted from the efforts of pioneers who conceived of innovations, developed them, and distributed them widely after prototype testing. In education, new organizational patterns, technological advances, and differentiated staffing patterns are examples of experimental efforts conducted in individual schools which had desirable connotations for other institutions, and were widely adopted. Curricular reforms of the past decade are primarily the result of small task-oriented groups who developed materials, prototype tested them in selected schools, revised them, and then distributed them widely.

In each of these illustrations, the impetus for change occurred with a committed small group; after initial development the innovation was disseminated to other schools and educational agencies. For these pace-setting institutions, the trauma of change was probably greater (though likely offset by pride and commitment) than with those who later implemented the innovation. The new venture likely strained resources, changed the focus of other efforts, and survived unforeseen needs and problems. After the initial development, however, demands of the program could be more readily predicted, and materials made available for implementation. Thus, the polished program could be transported to other institutions which could profit both from the inventive spirit of the innovator and the more explicit specifications for implementation. Even they, however, tend to *adapt* rather than simply *adopt* the new program, and thus face some of the problems of the earlier designer.

The depth of *organizational intervention* created by the new program will profoundly affect procedures and results. This problem was studied by the Task Force on Technical Assistance established by the National Center for the Improvement of Educational Systems, USOE. Criteria, strategies, and principles related in Figure 18 provide further insight into the nature of dissemination tasks to which program developers will attend.[1]

FIGURE 18

DEPTH OF ORGANIZATIONAL INTERVENTION

CRITERIA

1. To intervene at a level no deeper than that required to produce solutions to the problems at hand.

2. To intervene at a level no deeper than that at which the energy and resources of the client can be committed to problem solving and to change.

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[1] Leroy Anderson, Arnold Buchheimer, Mario Fantini, W. Robert Houston, and Charles E. Wilson, *A MEANS TO A MISSION: REPORT OF TASK FORCE ON TECHNICAL ASSISTANCE* (Washington, D.C.: National Center for the Improvement of Educational Systems, U.S. Office of Education, 1971), pp. 23-24.

FIGURE 18 (CONTINUED)

CHANGE STRATEGIES

1. Operations analysis - concerned with roles and functions to be performed within the organization.

2. Management by objectives - influence performance through application of rewards and punishments by establishing mutually agreed upon goals for performance and measures for assessing activity of the group.

3. Managerial grid - change behavior and working relationships by a process of bargaining and negotiations.

4. Sensitivity (T-Groups) - helping organization members become themselves, more comfortably, more authentically -- with an increase of mutual caring and concern.

5. Intrapersonal analysis - use of variety of methods to reveal individual's deeper attitudes, values, and conflicts regarding his own functioning, identity, and existence.

OBSERVATIONS ON LEVEL (DEPTH OF INTERVENTIONS)

1. The deeper the intervention (change effort), the more it deals with the individual's affective life.

2. The deeper the intervention, the greater the dependence on special competence of the change agent.

3. The deeper the level of intervention, the smaller the amount transferable to other members of the organization.

4. The deeper the level of intervention, the less effectively available is the needed information.

CONDITIONS AND LIMITATIONS OF INTERVENTION

1. The greater the workers' autonomy, the deeper the level of intervention required.

2. As workers are less subject to economic and bureaucratic pressures, they become less subject to an influence system.

FIGURE 18 (CONTINUED)

3. The more difficult the evaluation of an individuals' performance, the deeper the level of intervention required.
4. The greater the independence of the system, the deeper the level of intervention required.

INDICATORS OF INSTITUTIONAL COMMITMENT

The following very tentative criteria grew out of a question posed to this author in the last few months: "After working with a number of teacher education institutions as they designed competency-based higher education programs, can you identify any indicators which distinguish those who have made tremendous strides from those who have made almost no progress?" In speculating about this, the following criteria seemed to separate those institutions who were "early adopters" from those who were committed to nominal action and surface efforts leading only to a continuation of the status quo. Other persons with different experiences would likely list other variables. No attempt has been made to validate the list; it is merely suggestive and potentially useful as a simulator to program developers.

FIGURE 19

SOME POSSIBLE INDICATORS OF INSTITUTIONAL COMMITMENT

ADMINISTRATIVE COMMITMENTS

1. Implications (positive and negative) of CBTE for the teacher education program are specifically

FIGURE 19 (CONTINUED)

delineated, and can be articulated by chief administrative officer.

2. Decision to undertake study of CBTE definitely made and known to those involved in teacher education.

3. Specific directional statement made by chief administrator, eliminating ambiguity with regard to future college directions.

4. Particular person identified who has responsibility for program development.

   (a) What is his academic rank in university?
   (b) What is his mob description?
   (c) What is his relation to the dean, Committee on Teacher Education, Curriculum Committee, and other decision-making bodies? That is, how close is he to the locus of power?
   (d) What are his recognized strengths -- influence with others, management, and conceptual skills?

5. Were classes dismissed so that all faculty could participate in CBTE in-service activities and discussions?

6. Was the reward system for faculty consistent with implementation of a new program?

7. What has the college already done on its own in CBTE?

8. What evidence is there that the college is "high-risk" oriented, that it is constantly innovating practices?

STAFF COMMITMENT

1. What percentage of the faculty

   (a) Has read papers on or studied CBTE?
   (b) Can describe relevant characteristics?
   (c) Has designed instructional modules?
   (d) Has tried CBTE approaches with any of their classes?

FIGURE 19 (CONTINUED)

2. Were staff members involved in studying and making recommendations on CBTE, and was their feedback perceived by them to make an impact on the direction of the program?

3. Since CBTE increases field work, is field contact tangential or central to faculty? To what extent do faculty currently relate to field experiences?

AVAILABLE RESOURCES

1. What members of the faculty have direct experience with CBTE? What is the extensiveness of involvement?

2. What consultants or resource people will be working with program development? Their credentials?

3. What college resources are being put into the process? Released faculty time? College funds for materials development, modification, or purchase?

IMPLEMENTATION PLAN

1. Has a specific implementation timetable been outlined? Is it generally known to faculty?

2. Is a formative evaluation system functional in improving the CBTE program?

3. Are the targets of change efforts specifically identifiable in the plan?

4. Are there regularly scheduled activities in which faculty engage to increase their understanding and commitment to CBTE?

IMPACT POTENTIAL

1. How many persons

   (a) are directly involved in roles responsible for management and organization of the program;
   (b) development, prototype trial, and implementation phases of the program; and
   (c) are knowledgeable about the program?

FIGURE 19 (CONTINUED)

2. What is the potential impact on other teacher education programs?
3. What is the diffusion capability of the institution?

MANAGING THE PROGRAM

Organizing and managing a CBTE program during initial operation requires examination of program elements from several perspectives: students, faculty, institutional resources of both college and school (including resource utilization with respect to other institutional commitments and missions, other people, and organizational efficiency). Too often programs are organized for the benefit of the institutions and the individuals working there. We are suggesting herein that operational decisions be made on the basis of student perspective.

As the program begins regular operation and as the number of students increases, it becomes increasingly important that policies and procedures be explicitly delineated. An excellent example of a booklet designed for this purpose is the *ISTEP SYLLABUS* published by the Department of Secondary Education at Brigham Young University. Another example is Weber State, where small groups of new students tour the college; are shown the Operations Center, microteaching laboratory, and other resources; and have their questions answered by tour guides.

Whatever the procedure -- written materials, large group presentations, or small group tours -- orientation is a vital aspect of a CBTE program. For many students, these procedures and the new freedom and responsibility for self-direction are alien. Other programs present rigid schedules, structured requirements, and regular meetings. The distinctions made in CBTE will cause some confusion and anxiety at best; orientation at the beginning of the program -- reinforced with opportunities to recheck perceptions -- can dispel some uneasiness.

Several of the topics which students legitimately ask questions about are listed below. By attending to them, and explicitly defining procedures and requirements, the faculty will face and resolve many of the issues raised by CBTE. Answering the questions -- What? How? When? Who? Where? Why? -- for each topic presses for the level of explicitness needed, not only for students but for operating the program.

FIGURE 20

TOPICS ABOUT WHICH CBTE STUDENTS ASK QUESTIONS

COMMUNICATING WITH OTHER STUDENTS

- Organizing groups for seminars
- Observing each other
- Transportation to schools

COMMUNICATING WITH FACULTY

- Scheduling conferences
- Obtaining feedback on microteaching lessons
- Conferring with counselors
- Resolving conflicts with faculty or students

WORKING IN SCHOOLS

- Responsibilities to school
- Scheduling observations and participations
- Internship

FIGURE 20 (CONTINUED)

LEARNING RESOURCES CENTER

Obtaining modules
Using films, filmstrips, etc.

PROGRAM DIMENSIONS

List of teacher competencies
Negotiating instruction contracts
Attendance requirements, if any
Assignment of Advisors

EVALUATION

Turning in materials to meet module requirements
Observations by staff
Grading criteria and marks
Competency criteria

RECORDS

Individual student portfolio
Placement file
Student access to records
Registering for courses, components, or modules

Not only will attention to these topics answer students' queries, it will form a basis for policy decisions. Actually, this may be the most important use of this list -- its stimulation of areas which require policy decisions.

Students entering a program together will complete it at varying times. In a study of graduates at Michigan State University[2], 78.3 percent were in continuous attendance and 21.7 percent interrupted their college work for one or more terms. Of those in continuous attendance until graduation,

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[2] Frances H. Delisle, *AN INVESTIGATION OF PATTERNS OF COLLEGE ATTENDANCE BY MEANS OF TRANSCRIPT ANALYSIS* (East Lansing: Michigan State University, Office of Institutional Research, 1966).

10.4 percent were *accelerators*, completing the degree one or more terms early; 54.8 percent finished in four years and were designated *regulars*; while 13.1 percent took one or more additional terms to complete the degree. Implications of these findings for administrators assigning faculty and planning program offerings depend upon the extent to which these findings are consistent with those for their college, but the findings do focus attention on the varied attendance pattern of students.

Some students work very hard to accomplish program objectives and adequately demonstrate competencies. Others only minimally meet criteria, and fall behind because of lack of effort. Some procedures should be instituted for accounting for student achievement and identifying those who are not progressing satisfactorily.

SUSTAINED OPERATION

Change, inevitable and characteristic of today's world, must be designed into any dynamic endeavor, including sustaining and improving the CBTE program. We may long, like Custard the Dragon in Ogden Nash's intriguing story, for a "nice safe cage" where everything remains constant long enough for us to get some teaching done. But the dynamic world we are caught up in will not allow a slower tempo of change. If CBTE is to be in tune with present and future times, two areas must be given careful attention. First, the program must consciously consider and draw on the potentialities of a changing society. This effort cannot, as so often in the past, be left to chance or whim.

Second, the new program philosophy must include the explicit assumption that no program is ever completely developed. Changing needs, changing perspectives, and new research findings contribute to program alteration. Experience with program elements, and feedback from that experience leads to program modification. Too often a vital new program becomes stagnant within a few years because it was not designed to be changed and regenerative.

ANALYSIS OF FUTURE SOCIETIES

No comprehensive discussion of predicted futures is possible within the confines and objectives of this volume; however, a brief exposition of the area, and its implications for teacher education may provide a useful context for those sustaining and improving the operation of a CBTE program.

In a period of rapidly accelerating change, the future becomes increasingly unpredictable. Many people are seldom aware of their present environment and even less concerned with future conditions. Marshall McLuhan maintains that a present environment is invisible to those involved. It becomes visible only when it has been superseded by a new environment. The present is always invisible because the whole field of attention is so saturated with it that only a few recognize its salient features. McLuhan's rhetorical question, "Who invented water? It wasn't a fish!" vividly emphasizes the cage within which our present perceptions of the world hold us captive.

While man has always wanted to predict the future, never before has he employed such sophisticated tools or resources in that pursuit. Calculations of the future and how to modify it are no longer considered obscure academic pursuits. Instead they are the business of many who are charged with the responsibility for devising alternative modes of social change.

Future planning is of major concern to government agencies as well as social scientists. Reports of panels, task forces, editorial boards and seminars abound. The Department of Health, Education and Welfare sponsored a study which, under the direction of William Gorham and Daniel Bell, explored the possibilities of a social state-of-the-union. The American Academy of Arts and Sciences has established a Commission of the Year 2000 and a short-term Panel on the Year 1976. The American Academy of Political and Social Science has studied the Social Goals and Indicators for American Society. The United Nations sponsors a small future-planning operation in Geneva. Recently a World Future Society was formed in Washington, D.C. General Electric Company has set up the Technical Management Planning Organization in Santa Barbara where physical scientists, sociologists, economists and engineers contemplate the future. At Wright-Patterson Air Force Base, the Air Force conducts studies of the problem of scientific prediction as does the Rand

Corporation. The Hudson Institute investigates the possibilities of war and peace as well as the future in general. The Ford Foundation supports organizations such as Resources for the Future and Les Futuribles (the name is a combination of *future* and *possible*). Dr. Charles Osgood of the University of Illinois is conducting a computerized exploration of the year 2000 and Southern Illinois University sponsors the Buckminster Fuller World Resources Inventory. Future-planning centers with implications for education have been organized at Stanford Research Center and Syracuse University.

Little utopianism results from these studies. None of it is an apocalypse. Much of it may appear contradictory, especially when each prediction is viewed separately. Documents and reports often show that the futurist uses his predictive faculty to measure the feasibility of his aspirations. No common movement or idea of the future seems to exist, for the background and predilections of the future-planners are too diverse and diffuse. At one end of the continuum are liberal and social humanists who appear fairly conscious of the values they want the indicators to show; at the other end are the systems analysts.

Futurists do not make predictions in the truest sense of the word; instead many of them engage in the more complicated and subtle art of defining alternatives. They explicitly identify the available choices along with the related costs, benefits, and merits of alternate choices. The problem in preparing for the future involves in large measure declaring one's priorities and making necessary commitments.

When electing an alternative future, man must determine whether it directs him toward stability or toward change, whether it directs him toward already established values or toward a self-correcting value system, whether it directs him toward affirmation of eternal verities or toward a kind of historical revisionism. These two conflicting goals of stability and change have been dominant in the history of human thought. Their prototypes go back to Parmenides and Heraclitus, Greek philosophers who lived before Socrates. For Parmenides, stability was the one reality, and was continuous and changeless; change in the form of creation or passing away was inherently contradictory and illusory. For Heraclitus, change in the form of the striving of opposites was the only reality, and stability was illusory. All things, he said, are in process and nothing stays still; ("You cannot step twice in the same river"). Thus, Parmenides favored a world view of stability and Heraclitus chose the world view of change.

Some people now view change in essentially the same manner as did Parmenides, with institutions (nations, religions, business organizations, industries) viewed as enduring. They presume values to be firm and constant. To the extent that they admit historical change they see it according to the model of progressive and steady development within a stable framework of value. Likewise, their concept of human identity rests on the assumption of a continuing stable state.

The Parmenidean attitudes suffers as the rate of change increases. Too much has happened to laws, views of the world, values, and institutions within the span of a man's life to sustain the Parmenidean attitude. The main source of the challenge to the Parmenidean attitude is technological innovation. For some people, technological change is not incompatible with the Parmenidean view and they have used it as an instrument to achieve stable social objectives. They have refused to admit that technology has affected their very nature and structured their way of life.

Other people recognize that in order to cope with technology they must accept the Heraclitan view. They consider mandatory a change-oriented cultural policy. The vast proliferation of science and technology has dramatized the necessity for a new, change-oriented cultural policy. We must recognize that 1) technology and science often lead to new options or new alternatives for handling old problems; 2) new options may lead to re-evaluation of existing practices and values; 3) as these new scientific discoveries and understandings take place, we need a system of values to support our decision-making process because values suitable in one age may not be suitable in another; and 4) costs may be involved in exploiting opportunities provided by science and technology.

The catalog of future possibilities, likelihoods, and inevitabilities covers a wide range of areas with considerable variation in reaction to each prediction or set of predictions. The implicit premise underlying all these predictions is that the context of the United States and the world will remain the same and that there will be no major inventions or discoveries. A typical futurist's reports reveal that in the future there will be:

> huge population increases, increases in the size of dependent populations; more protests; worsening race relations; more mass violence; a larger generation gap; more air pollution; more drugs; famines that will kill half a billion people in one year; massive air invasions; career training will not keep up with career roles; essential information about public policy will become secretive and most people not to be able to paticipate in government; and so on.[3]

Another futurist is convinced that mankind can and will use its rationality, the marked expansion of the physical world and new potentials for understanding the mechanisms of the simplest atoms and of life itself to a fuller realization of such goals as exploration of space, lengthening of the life span, elimination of human suffering through biological reconstruction of the human race, development of independent artificial intelligence, and expansion of the range of human awareness by direct stimulation of the brain.[4]

The future's *certainty* is change and challenge. The futurists provide a set of possibilities. These predictions and conceptions are made within the context of a stable, static, and contemporary view of the United States and the world. The social systems and the relationships among them are bound to change over the years. These changes, perhaps more than the technical feasibility of any of the breakthroughs, will determine the possibility of realizing predictions. Consequently, repeated and frequent appraisals of the predictions are needed in terms of the contemporary scene and problems of values if one is to make intelligent and effective advantage of the futurists' findings. For example, one may view alternative future societies as follows:[5]

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[3] Donald N. Michael, *PLANNING FOR A PRECARIOUS FUTURE*. Basic Books, 1968, p. 138.

[4] Gerald Feinberg, *THE PROMETHEUS PROJECT, MANKIND'S SEARCH FOR LONG-RANGE GOALS*, (Garden City, New York: Doubleday, 1968), p. 216.

1. There are very real doubts concerning the future of our democratic way of life.

   Yet, intimations of the future suggest *capabilities* for making democracy more responsive to the needs of people and more successful in planning for the use of all resources, knowledge, and processes in the service of mankind.

2. Population concentrations may grind individuals into a sense of impotence and undermine their feelings of worth and dignity.

   Yet, concentrations could make it feasible to provide the very best services and activities possible. Further, transportation and communications capabilities could provide adequate contacts with people and places far removed. Closeness could create appreciation of rich diversities in various groupings of individuals without homogenization, from interaction with those who are "different."

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[5] W. Robert Houston (ed.), *BEHAVIORAL SCIENCE TEACHER PROGRAM: FEASIBILITY STUDY* (East Lansing: Michigan State University, 1970), p. 244-246.

3. Biological capabilities may be misused to promote narrow, selfish interests.

   Yet, they could be used to overcome limitations which in the past have held people down. They could be used to create healthier minds and bodies and extend capabilities for enriched perceptions and feelings.

4. Systems approaches and cybernetics may reduce men to robots without a sense of worth, humaneness, justice, or yearning to be free.

   Yet, they could free man to find himself as a unique entity recognized for what he is rather than what he produces. They could remove material causes of conflict and greed.

5. Improved capabilities in communications and transportation may stimulate excessive mobility and destroy an adequate sense of stability; such capabilities may stimulate movement of people as pawns on a chessboard.

   Yet, they could provide means for enrichment and effective interaction with peoples everywhere. This could stimulate improvements and movement away from provincialism without destroying meaningful diversity.

6. Rapid changes in and proliferation of values and objectives may create divisiveness to lead society into conflicting subgroups.

   Yet, changes could create a wholesome acceptance of continuous movement toward values which are viable for the times, in the direction of increased humaneness, justice, freedom, peace, and honesty in human relations.

7. Tendencies toward racial, ethnic, class, and national manifestations of tribalism may create fears, tension, and conflict as standard conduct.

   Yet, a reasonable degree of tribalism could counteract other trends toward pervasive conformity and provide a degree of experimentation with an application of differences in values, objectives, processes, and products. Out of this could come rich interaction of peoples who have developed pride as part of a distinguishable and supportive tribe.

8. Education may be reduced to indoctrination, prescribed skill development, induced satisfaction, and routinized searches for pleasure and comfort.

   Yet, it could become individualized, relevant, and enriched by the tools of technology and world-wide resources of people, places, and things. There could be lifelong growth in knowledge, insights, and competences for all humans. There could be a satisfying mix of that which humanizes and that which facilitates effective, competent citizenship.

9. Teacher preparation programs may become prescribed exercises in information mastery, skill development, attitude change, and competency development at rigid performance levels. School personnel may become prepared to use materials and tools which individual teachers cannot, or may create or modify prescribed by an excessively small, selfish elite not responsible to the general populace.

   Yet, it would be possible to prepare school personnel capable of using the right mix of content, materials, equipment, spaces, and places to help children and youth to attain their uniqueness and competence to live democratically in a most complex world.

Designing educational programs which are relevant for the future is vital. No longer can we simply rely on past practices; these must be placed in the context of future needs. While the turn of the twenty-first century seems far in the future, we must remember that prospective teachers and neophytes of today will be in their prime at that time.

RESOURCES ON THE FUTURE

Ayres, Robert U. *TECHNOLOGICAL FORECASTING AND LONG-RANGE PLANNING* (New York: McGraw-Hill, 1969).

Calder, Nigel. *TECHNOPOLIS: SOCIAL CONTROL OF THE USES OF SCIENCE* (New York: Simon and Schuster, 1970).

Cetron, Marvin J. *TECHNOLOGICAL FORECASTING: A PRACTICAL APPROACH* (New York: Technology Forecasting Institute, 1969).

Clarke, Arthur C. *PROFILES OF THE FUTURE: AN INQUIRY INTO THE LIMITS OF THE POSSIBLE* (New York: Harper and Row, 1962).

Conant, James B. *MY SEVERAL LIVES: MEMOIRS OF A SOCIAL INVENTOR* (New York: Harper and Row, 1970).

Feinberg, Gerald. *THE PROMETHEUS PROJECT: MANKIND'S SEARCH FOR LONG-RANGE GOALS* (Garden City, New York: Doubleday, 1968).

Forrester, J. W. *WORLD DYNAMICS* (Cambridge, Massachusetts: Wright-Allen Press, 1971).

Gabor, Dennis. *INNOVATIONS* (London, Oxford University Press, 1970).

MAINTAINING PROGRAM RELEVANCY

A final word; far too many innovations have been started as bright new ventures, initiated by creative educators, and ballyhooed as the answer to all the ills of education and society. Before the new venture had an opportunity to test its basic assumptions in the caldron of practice, its image was tarnished. And soon thereafter it too joined that huge and growing boneyard of educational ideas tried and died.

This too can happen to Competency-Based Teacher Education. Its promise is great, but its developmental state has barely begun. Several years of research and trial will be necessary to design adequate programs. During that time, educational designers will come under fire from those who espouse another philosophy or desire no change in educational practice. Resources will likely be scarce and competition for them great. In such times, the temptation to continue current programs must be dissuaded. For only in continual data-based, thoughtful change will preparation programs for educational personnel improve.

Appendix A

COMPETENCY-BASED TEACHER EDUCATION: WHAT DO YOU THINK IT'S ALL ABOUT?

KARL MASSANARI

Encircle either the "A" or "D" before each statement, depending on whether you agree or disagree with it.

A D 1. The major drawback to the successful implementation of CBTE programs is apathy on the part of teacher educators.

A D 2. CBTE requires a re-examination, and in many instances a re-structuring, of conventional faculty roles.

A D 3. CBTE has more to say about the substance of teacher education than it does about its form and structure.

A D 4. Many of the concepts incorporated in CBTE are not new, i.e., they are ideas which teacher educators have talked about for years.

A D 5. CBTE emphasizes demonstrated competence by the prospective teacher, rather than passing courses, as a means to evaluate his readiness to assume a professional role.

A D 6. Entrance requirements are as important as exit requirements in a CBTE program.

A D 7. CBTE promotes the idea of accountability on the part of the student and the training institution.

A D 8. Assessment of the student's competence uses his performance as the primary source of evidence.

A D 9. Students in CBTE programs are expected to master the identified competencies in the same period of time.

A D 10. CBTE programs tend to be highly individualized.

A D 11. CBTE is applicable only to preservice preparation programs.

A D 12. CBTE programs tend to be more field-centered (in contrast to campus-centered) than is true of traditional teacher education programs.

A D 13. There are many opportunities to provide feedback to the individual learner in the CBTE programs.

A D 14. CBTE programs require that objectives are clearly specified and made public in advance of the instruction.

A D 15. CBTE tends to broaden the base for decision-making in teacher education.

A D 16. Much of the instruction in CBTE program is modularized.

A D 17. Because of the nature of CBTE, most programs will be nearly identical, with few variations or alternative approaches permitted.

A D 18. The criterion, and the only criterion, for determining the competence of the prospective teacher is pupil behavior, i.e., how much the pupils whom he teaches actually learn.

A D 19. The profession's knowledge base for operating CBTE programs successfully is adequate.

A D 20. CBTE programs are incompatible with the NCATE Standards.

Appendix B

MODULE EVALUATION QUESTIONNAIRE*

This questionnaire is designed to evaluate the weaknesses and strengths of modules. You are being asked to respond as honestly as possible to the statements. Your responses will be used to develop a better module.

Please do not make any marks on the provided questionnaire. *Make all marks on the two provided answer sheets. Please use a pencil when responding on the answer sheets.*

On Answer Sheet I, fill in the provided spaces. Include any comments you may want to make concerning the module. "Blacken-in" under the proper letter on the Optical Scanning Score Sheet the response that *best* reflects your feelings. Use spaces 1 to 30 for this purpose.

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[*] Developed by Andrew S. Jackson, Teacher Center, University of Houston, Houston, Texas.

ANSWER SHEET I

Title of Module____

Person in charge of Module________________Date_____________

ADDITIONAL REMARKS

I. GENERAL INFORMATION:

1. What is your sex?

   A. Female
   B. Male

2. What is the level you are preparing to teach at this time?

   A. Elementary
   B. Secondary
   C. All Level
   D. I am not sure at this time
   E. Other, please name in provided space labeled "Additional Remarks."

3. Without considering the hours to complete the module, over what period of time did you take to complete the module? Consider from the time you initially started to the time when you completed the postassessment.

   A. One day or less
   B. More than one day, but less than two days
   C. More than two days, but less than three days
   D. More than three days, but less than four days
   E. Four days or more

4. In all, approximately how many hours did it take you to successfully complete the module?

   A. Less than one hour
   B. More than one hour, but less than three hours
   C. More than three hours, but less than five hours
   D. More than five hours, but less than seven hours
   E. More than seven hours

II. PROSPECTUS:

The prospectus is designed to give the learner a general overview of the module. The prospectus consists of three basic parts: 1) rationale, 2) terminal objectives, and 3) prerequisites.

5. After reading the rationale, I had a general idea of why this module is important and how it could help me become a teacher.

Strongly Agree	A	B	C Not Sure	D	E	Strongly Disagree

6. By reading the stated rationale of the module, I was motivated to start the module.

Strongly Agree	A	B	C Not Sure	D	E	Strongly Disagree

7. The terminal objective clearly described the competency I had to demonstrate to successfully complete the module.

Strongly Agree	A	B	C Not Sure	D	E	Strongly Disagree

8. I felt that the terminal objectives were designed to meet the needs stated in the rationale.

Strongly Agree	A	B	C Not Sure	D	E	Strongly Disagree

9. Prior to starting the module, estimate the extent to which you satisfied the prerequisite behaviors.

All	A	B	C About 50%	D	E	None

10. After completing the module, estimate the extent to which you feel that the prerequisite behaviors were necessary.

All	A	B	C About 50%	D	E	None

11. After completing the module, I felt that additional prerequisite behaviors were needed.

Strongly Agree	A	B	C Not Sure	D	E	Strongly Disagree

12. Based on the module's general objectives, I had a clear understanding of the steps necessary to complete the module.

Strongly Agree	A	B	C Not Sure	D	E	Strongly Disagree

13. I had a clear understanding of what was expected of me.

Strongly Agree	A	B	C Not Sure	D	E	Strongly Disagree

14. When I needed additional help, I had difficulty finding the people on the instructional staff who could help me.

Strongly Agree	A	B	C Not Sure	D	E	Strongly Disagree

15. The specific instructions concerning the location of instructional media (film strips, books, articles, etc.) were vague or inaccurate.

Strongly Agree	A	B	C Not Sure	D	E	Strongly Disagree

16. Based on the preassessment activity, I decided to attempt the postassessment activity.

A. Yes
B. No

III. PREASSESSMENT:

The preassessment is designed to determine your areas of weakness and strength in relation to the terminal objectives.

17. The preassessment activity aided me understanding where I needed to focus my efforts.

Strongly Agree	A	B	C Not Sure	D	E	Strongly Disagree

18. The preassessment activity and terminal objective were consistent.

Strongly Agree	A	B	C Not Sure	D	E	Strongly Disagree

IV. LEARNING (ENABLING) ACTIVITES:

The learning activities are designed to produce the changes in behavior so that the terminal objectives will be achieved.

19. Due to the preassessment, I felt that I would be able to successfully test-out of the module without completing any of the enabling activities.

Strongly ___A___ ___B___ ___C___ ___D___ ___E___ Strongly
Agree Not Sure Disagree

20. Which learning activity did you select?

A. A stated instructional alternative
B. A student option
C. None, I elected to take the post-assessment
D. There was only one learning activity specified

21. The number and variety of instructional alternatives was sufficient.

Strongly ___A___ ___B___ ___C___ ___D___ ___E___ Strongly
Agree Not Sure Disagree

22. The learning activities presented in the module were responsibile for my acquiring the competencies stated in the terminal objectives.

Strongly ___A___ ___B___ ___C___ ___D___ ___E___ Strongly
Agree Not Sure Disagree

23. The learning activity I selected was an enjoyable learning experience.

Strongly ___A___ ___B___ ___C___ ___D___ ___E___ Strongly
Agree Not Sure Disagree

24. Were any of the enabling activities unrelated to the terminal objectives? If so, please state the specific activities in the remarks section.

A. Yes
B. No

V. POSTASSESSMENT:

The postassessment is designed to evaluate successful achievement of the terminal objectives.

25. The postassessment activity measured the competency stated in the objectives.

Strongly	A	B	C	D	E	Strongly
Agree			Not Sure			Disagree

26. The postassessment activity actually tested the learning activities presented in the module.

Strongly	A	B	C	D	E	Strongly
Agree			Not Sure			Disagree

27. The level of competency required to successfully pass the terminal objectives was too high.

Strongly	A	B	C	D	E	Strongly
Agree			Not Sure			Disagree

28. The postassessment result was a true index of my level of achievement.

Strongly	A	B	C	D	E	Strongly
Agree			Not Sure			Disagree

VI. GENERAL THOUGHTS:

29. In terms of helping me become a good teacher, I would rate this module as:

Strongly	A	B	C	D	E	Strongly
Agree			Not Sure			Disagree

30. In terms of other courses or module, I would rate this module as:

A. One of the best
B. Better than average
C. Average
D. Below average
E. One of the worst

31. How do you feel about filling out this questionnaire?

Yuk (**#@#) A B C D E Yea
No Feeling